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II.—An Account of a Visit to the Chaldeans, inhabiting Central Kurdistán; and of an Ascent of the Peak of Rowándiz (*Túr Sheikhwá*) in the Summer of 1840. By WILLIAM AINSWORTH, Esq.

THE most characteristic feature of the great mountain-barrier which separates Western from Central Asia is the remarkable parallelism of its ranges, the general direction of which is nearly N.N.W. and S.S.E. This chain, which is prolonged to the S. by only a few comparatively low ranges, constituting what I have elsewhere named the Persian Apennines, assumes the height and character of true Alps or principal mountain masses in the districts of Luristán and Kirmánszáh; but there, as to the S. of Kurdistán Proper, in the districts of Suleimáníyeh and Ardelán, and to the N. in the districts of Betlís, Se'rt, and Zákhó, the parallel ranges are not so numerous nor extensive as to prevent the tribes of mountaineers from being tributary on the one side to Turkey, and on the other to Persia, or to Turkey solely.

It is, however, between the parallels of 36° and 38° N. lat., or in Kermánj or Kurdistán Proper,* that the same chain appears to attain its greatest extent and elevation; the number of ranges succeeding one another is there great, and it is only within them that two tribes of mountaineers—the Tiyári and Jellú—belonging to an ancient Christian community, have preserved their independence intact for ages. It is true that certain Kurd tribes or chieftains have frequently thrown off the yoke of the 'Osmánlí on the one side, and of the Persians on the other, and that their wild and lawless habits are strongly opposed to a regular government; but within these few years much has been done towards ameliorating their condition, and towards establishing among them the authority of the Sultán and of a daily improving legislation.

Thus, of the four districts of Kurdistán Proper, Bukhtán is under the government of Zákhó and Jezíreh ibn 'Omár, the latter of which was only subdued in 1834-35 by Reshíd Páshá. The tribes of northern Kurdistán were reduced to obedience by Háfiz Páshá in 1837-38. The Bey of Hakkári is really under the sway of the Páshá of Ván, the fertile shores of which lake bring

* Major Rawlinson designates Ardelán as Kurdistán, or the country of the Kurds Proper. This may be true in one sense, as the designation is unknown among the natives, who call themselves Kermánj. But the modern application of the name Kurdistán is justified by long usage: that name is given to the same country in the present day by the Persians, Turks, Armenians, Chaldeans, and Arabs of the neighbourhood, and is generally recognised in Western Europe, though with too great a latitude. In the present day, Kerkük and Arbil are considered as towns attached to the Páshálík of Baghdád, and the ancient Adiabene forms part of the Páshálík of Mósul. It is not customary, although quite arbitrary, to consider the country of the plains W. of the outlying ranges of hills in either of these Páshálíks as forming part of Kurdistán. Jezíreh Zákhó and Kói Sanják, like 'Amádiyah and Suleimáníyeh, are in the hills.

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L A K E V A N

Map of Central KURDISTAN, to illustrate Mr. Ainsworth's

The map shows the following geographical features and labels:

- Lake Van**: Located at the top right, with points like Tidvan, Garzit, Gul-li, Narnigas, Khanjaik Mon'y, Akhmanir Mon'y, and Alavanisk marked along its shore.
- Rivers and Deltas**: The Tigris River (R. Tigris) flows from the west, through Jezireh ibn Omar, Ain-sar, and Zakhó or Zakhu, eventually reaching a delta labeled B A H D. The Shahr-i-Sipor Abyadh is also shown originating from the Tigris delta.
- Mountains and Landmarks**: The Zagros Mountains are depicted in the bottom right, with labels like Berber, Rabban Hormuz, Bagh Idri, Hasivan, Dushish, and Pl. of Nav.
- Geographical Labels**: Points like Sert, Buhtan Chai, Betlis Chai, Betlis, and Artemid are marked. Letters B, U, H, J, e, b, e, l, T, J, u, d, i, R, and V are scattered across the map, likely representing different regions or survey markers.
- Scale and Grid**: A vertical scale bar is on the left, and a horizontal scale bar with a distance of 43 miles is at the top. Latitude lines are marked at 37° and 42°.

Map
of Central
KURDISTAN,
to illustrate
Mr Ainsworth's

Kotur

Kóniyeh

Sar-al-Bagh

Salamastor



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Sojj Bolak
Mikri

Map
of Central
KURDISTAN,
to illustrate
M^r Ainsworth's
Visit to the Chaldeans.
in 1840.

5 10 15 20 25
English Miles.

Geological Index
to the
Sections.



Granite, Gneiss &c.

Trachytes.

Trap rocks. / Dolerites, Basalt &c./

Diallage rocks. / Ophiolites, Serpentine &c./

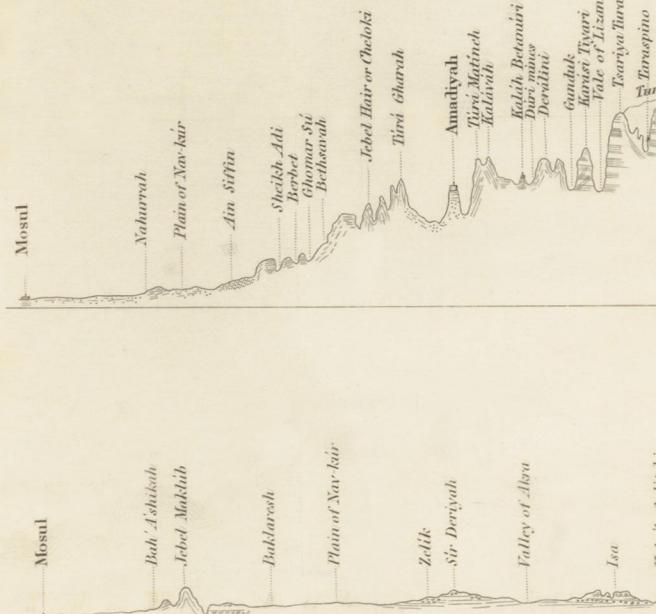
Quartz rocks.

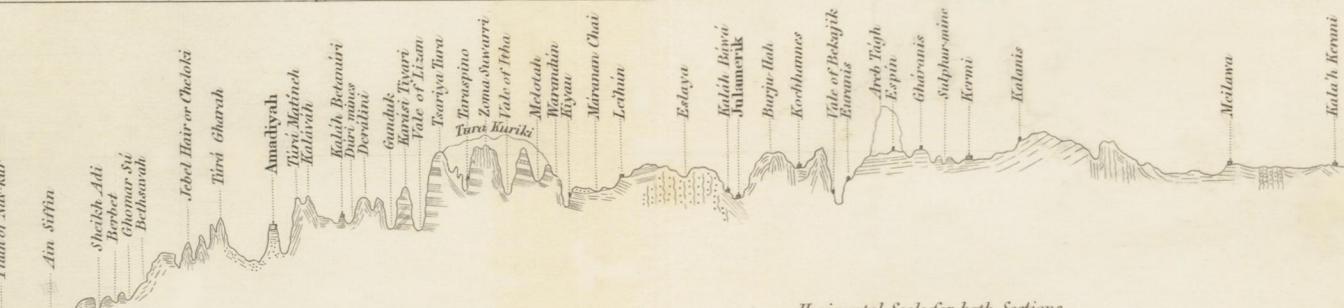
Conglomerates.

Sandstones.

Limestones.

Schists & Shales.

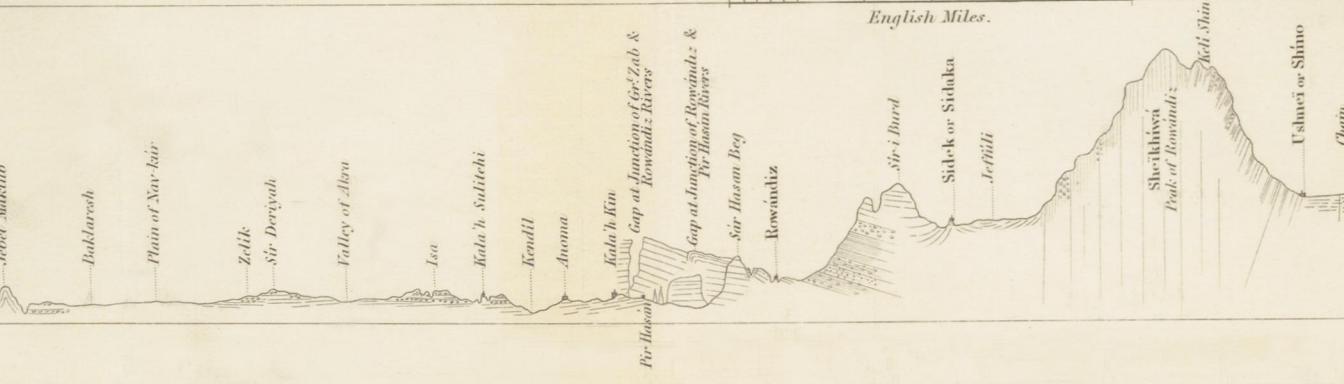


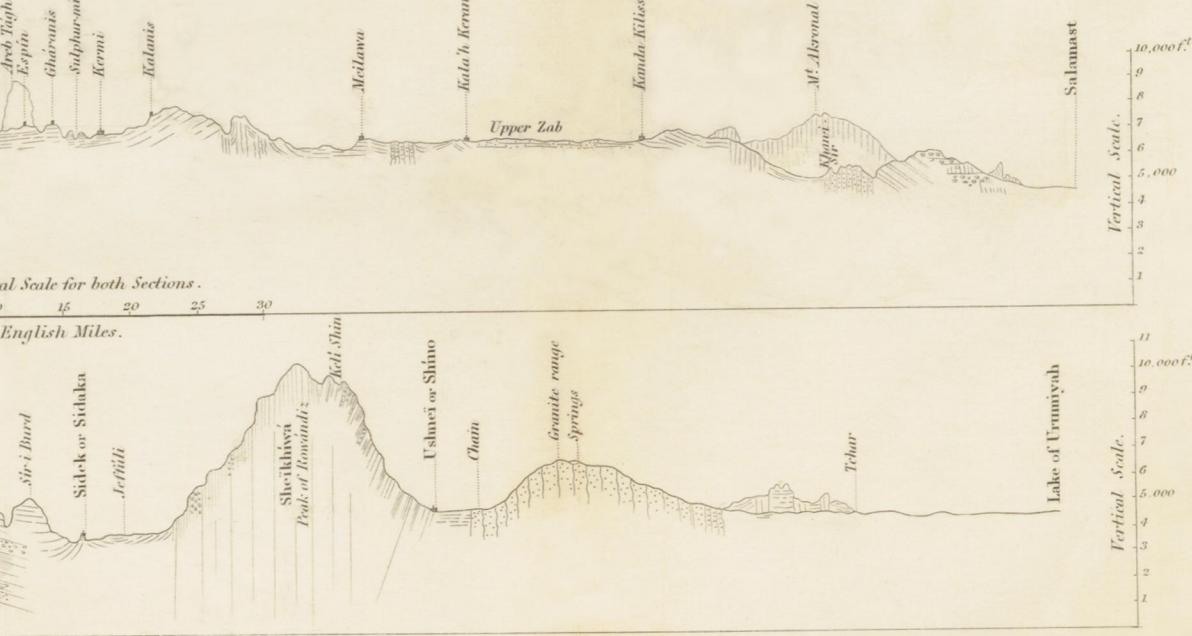


Horizontal Scale for both Sections.

1 5 10 15 20 25 30

English Miles.





industry, civilization, and government into the heart of Northern and Central Kurdistán. The Beg of Rowándiz revolted a few years back, and was enticed away from the mountains, his brother having been appointed in his place; for the steep rocks which form the natural barrier of the Rowándiz country were never climbed by the 'Osmání troops. The Beg of 'Amádíyah, who governs Bahdínán, the fourth and last district, has been a recent cause of trouble, and in the spring of 1839 'Alí Páshá of Baghdád came to Mósul in order to reduce that disobedient chief, but no active measures were then taken.*

Mr. Rassám and myself were waiting anxiously at Mósul in the spring of 1840 for two desiderata for penetrating into Central Kurdistán: first, the melting of the snows, which only proceeds so far as to render the great chains passable in the month of June; and, secondly, the arrival of the instruments which we had received notice were on their way from the Royal Geographical Society. Muhammed Páshá of Mósul, who, by the cession of Márdín to the government of Diyár-bekr, had raised his force, in regular and irregular troops, to about 2000 men, was waiting also for the same favourable season to put into execution the campaign projected the preceding year.

The Páshá started on the 28th of May, and soon afterwards

* I regret that in this section, the only one published in "Researches, &c.," in which the altitudes are not founded upon barometrical observations, that I was not aware of Mr. Frazer's observations upon the same chain with the boiling-point thermometer. This has been designated a rude and inaccurate method; but with the improved instruments now made for the purpose, I am inclined to look upon it as much more serviceable than the barometrical one. The instrument appears almost incapable of getting out of order, and is much less easily broken; while I have never yet seen a barometer carried over a chain of mountains, or through a long journey, without losing some of the quicksilver through the pores of the wood. This has happened to me with barometers of various constructions by Newman, Troughton, &c. The late French expedition of MM. Texier, De la Bourdonnaye, &c. in Asia Minor broke *six* barometers. Good tables of corrections for observations made with the boiling-point thermometer are still wanted; but the instrument itself is, if properly constructed, susceptible of the greatest delicacy. The number of observations made with it upon the present journey amount to fifty-seven, of which six only were liable to doubt; whereas in the barometric observations made across Taurus there are several, as at Márdín, 3175 feet by barometer, which I have since found to require correction.

It might be added, as one of the great characteristics of the mountains of Kurdistán and of the Persian Apennines, that they do not constitute, as is usually the case, chains which rise towards the centre and fall towards the sides, but a country of mountains gradually rising towards an upland beyond. But this is also the case with Taurus, where the waters spring from the northern declivities, as at the Gölek Bógház and the pass of Pelverreh; and great rivers, as the Seihún, Jeihún, Euphrates, and Tigris, find their way through the chain. In the Kurdistán mountains we find the Great and Less Zab presenting similar phenomena, and the same is the case with regard to the Diyálah in Kirmánszáh and the Kerkhal and Dízful in Luristán. The elevation of the great Persian upland E. of these mountains is, according to Frazer, at Zergún 4500, at Isfahán 4000 (Hamadán is evidently higher); at Tabriz, according to Brown, 4500; and from several observations by myself the lake of Urumiyáh 4300 feet. The sources of the Zab, according to Colonel Monteith, are at an elevation of 7500 feet, which will be found to agree with the thermometric level.

intelligence came of the Persians having occupied Suleímáníyeh. Under these circumstances we resolved to start without further delay, and, avoiding the Turks if possible, by taking a cross road, to reach 'Amádiyah before them, and before the country should be thrown into a disorder which might render it inaccessible for the whole season.

The first object which we proposed to ourselves was to visit Sheíkh 'Adí, so celebrated as the chief seat of I'zedí or Yezídí worship, and whither no European had yet bent his steps. Having ridden a little way out of town on the evening of June 7th, we were enabled next morning (Monday, June 8th) to cross the N. shoulder of Jebel Maklúb, the Mons Nicator of the historians of Alexander, and from the contorted limestone of which issue some abundant springs of fine water. On the south-western face of the same mountain are also the ruins of a Christian monastery, called Deir Sheíkh Matté, the monastery of Sheíkh or Father (Saint) Matthew.

Beyond this a country of low hills of tertiary sandstones led us to the plain of Nav-kúr, or the place of mud (not Nakúr), watered in its centre by the Khazír, or Bumadus, and bounded to the N. by the limestone range of Rabbán Hormuz, at the foot of which is the large Yezídí village of Bágh-Idrí; to the N. E. by the sandstone hills of 'Aín Siffin; and to the E. by the limestone rocks of Akra', through which the river forces its way from the N., apart from the hydrographical basin of Akra', which will be afterwards described.

We reached 'Aín Siffin after a journey across the plain of 4 hours, and entered at this place upon the mountainous country. The plain of Nav-kúr, except when cultivated, is almost entirely overgrown with species of glycyrrhiza and artemisia, and certain social umbelliferous plants. Already at 'Aín Siffin a slight change in vegetation is perceptible. The common thorn makes its appearance; and the rivulets are adorned with the bright pink blossoms of oleander, and afford water-cresses, a luxury abundant throughout Kurdistán, though unknown in Mesopotamia. On entering the hills the remarkable increase of animal and insect life also attracts attention: large snakes of an ash-grey colour are very common, and we sometimes observed them engaged in captivating the beautiful lizards of the country: coleopterous insects, of brilliant colours, basked on the flowering plants; and there occurred, on a species of euphorbia, a yellow caterpillar with bright scarlet spots, and which attained from 3 to 4 inches in length, with a proportionate bulk of body.

Two hours' journey over the outlying hills brought us to a more lofty range of limestones and sandstones, which we crossed by a narrow glen, watered by a tributary to the Khazír, and

abounding in a varied vegetation, more especially of shrubs. About $2\frac{1}{2}$ miles up this ravine the valley widens, and gives off two other lateral and parallel valleys; that to the S. contains the village of Magheirah: in the central valley is that of Kathandíyah, while to the right is the northern vale, more narrow and deeply clad with wood; and out of a dense and beautiful grove at the head of this rise the conical spires of the temple or tomb of Sheïkh 'Adí, at once a secluded and beautiful site. Sending the mules to a spring near Kathandíyah (temp. 59° Fahr., air 89.6), Mr. Rassám and myself turned up the valley of Sheïkh 'Adí, which is commanded by a conical summit of the same name. We scarcely expected to overcome so far the religious scruples of so severe and so mysterious a sect as the Yezídís, as to be allowed to penetrate into the sanctuary; but after taking a rapid sketch of the building, which stands at the base of a perpendicular cliff, and has two conical spires, one larger than the other, pointed, and supporting copper balls and crescents, we continued our way, and were met by the guardian of the place, who, with some slight expressions of distrust, ushered us to a gateway, which led into a vaulted stone passage, through the centre of which ran a stream of cool water. This passage was about 40 paces long, and led into an outer court, overshadowed by large mulberry trees, well paved with flags, and having large cisterns of clear water, besides separate bathing-rooms, for the ablutions previous to prayer. Tempted by the refreshing appearance of the water, as well as from policy, without speaking a syllable foreign to the ears of those present, we washed ourselves, and taking off our shoes, were admitted into a second and larger court-yard, with arched recesses along the sides, and the temple at the bottom. This spot was as clear, cool, and inviting as the first yard; and we could not help thinking what a delightful summer residence Sheïkh 'Adí would make. Descending a flight of steps, we now entered into the building itself. It was a great vaulted apartment, like an ordinary mesjid: on an elevated terrace within it, and screened by green curtains, was the coffin said to contain the remains of Sheïkh 'Adí. Round this were spots where fires of bitumen and naphtha are burnt at the time of the annual festival. Beyond this hall is an inner one, to which access was refused us. I, however, opened the door, and saw an apartment lower than the chief one, and containing only a few planks and other lumber,—a place most decidedly neither of sanctity nor of mystery.

We now asked the Yezídís present concerning the peacock, of which they at once declared their ignorance. The question was put to them publicly and so abruptly that no opportunity was given to prepare an evasive answer. I carefully watched the expression of their countenances, and saw nothing that indicated deceit; on

the contrary, the expression was that of surprise at the inquiry ; and I am strongly inclined to think that the history of the Melik Táús, or king peacock, as related by Father Maurizio Garzoni, M. Rousseau, Buckingham, and more modern travellers, as Mr. Forbes, is a calumny invented by the Christians of those countries. I venture this assertion, however, with reserve ; for it is curious that a Christian residing at Kathandíyah, in the neighbourhood of the place, still persisted in the truth of this tradition. The Mohammedan Kurds (not Yezídís), who served as muleteers, remarked to me, that I had myself found it to be a falsehood. The images of David and Solomon have no more existence than the peacock ; and I need not add that the account of their assembling on the eve of the festival held on the tenth day of the moon, in the month of August, of the lights being extinguished, and of their holding promiscuous intercourse till morning, has every appearance of being a base calumny, assailing human nature in general, while aimed against the poor Yezidis in particular. I have seldom seen a more respectable, benign, good-looking Mullá than the one who superintends the church of Sheïkh 'Adí. I inquired when the great bitumen-fires, of which I saw the traces, were lighted. "On the night of the festival," was the answer. The broad blaze of numerous fires of mineral pitch light up a scene which the imagination of the ignorant and wilful Easterns has filled with horrors. My informant, however, whatever might be his doctrines, had the look of one habituated to a peaceful, meditative, and pious life, and most certainly not of the leader of vicious and licentious orgies.

The only peculiarity that I observed at Sheïkh 'Adí to distinguish it from any other mesjid were, besides the bitumen fires, some sculptures at the door, representing a large snake, painted black, and probably emblematic of Satan, the evil spirit, whom they rather propitiate than worship. There was also an ill-formed quadruped—it is impossible to say whether a dog, a horse, or a lion—and a hatchet.*

* The proof of direct worship of the Spirit of Evil has been mainly founded upon the fact, that no traces have been perceived of the worship of Yezdán, or Ormuzd, or the good principle, in opposition to Ahrimán, or the evil principle. This is at the best but a negative argument. Whatever has been propagated among these people of the ancient doctrine of the Parsís must be now corrupted by gross superstitions ; and we may, perhaps, recognise in the sculptured idol accompanying the serpent, the emblem of I'zed Ferer, or other of the Parsí attendants upon the evil spirit. (Tennemann's History of Philosophy. Brussels, ed. fol., vol. i. p. 72.) The name I'zed suggests a coincidence as curious as that remarked upon by Major Rawlinson from Theophanes, and a letter of Heraclius to the senate, noticing a position in Adiabene, called Iesdem, and which he considers as a settlement of I'zedís, or, as they were afterwards named by the Mohammedans, Yezídís. (Jour. of Roy. Geo. Soc., vol. x., p. 92.) Major Rawlinson does not make any further remarks upon this sect ; but it would appear from this passage that he regards them as I'zedís, or followers of I'zed, as suggested above, rather than of Yezíd, the second of the Ommiade Khalifs. They have, however, many

The village of Sheïkh 'Adí stands on the top of an adjacent cliff, above the prettily-situated temple. We partook of mulberries from the hands of those kind villagers, who, had all the accusations laid against them been true, would have acted very differently towards strangers visiting their most sacred place.*

The two largest villages of the Yezídís in this country are Bah 'A'shikáh, at the western foot of Jebel Maklúb, surrounded by olive groves with stone-built houses, and pleasing situation; the next is Bál idrí, at the foot of Rabbán Hormuz, the seat of Sheïkh An, their patriarch. Besides this they are widely distributed through Bahdínán, and, as is well known, constitute the chief population of the Sinjár. Their villages are easily known by the clean whitewashed tombs with conical tops which generally crown some small eminence in their neighbourhood. On a first journey in Bahdínán I had been taught to look upon these as temples to the evil spirit; but a now extended opportunity of inquiry has satisfied me that they are exactly the same as the Ziyárets, or holy men's tombs, in the villages and mezárs of all Western Asia.

Tuesday, June 9th.—A gentle ascent led us to the crest of the Sheïkh 'Adí range, wherein a well-chosen and picturesque situation, as usual, was a burial ground of the Kurds. The sanctity of these inclosures, mostly situate on lofty and commanding positions, preserves the trees which are planted, or that spring up naturally, from destruction, and they thus afford the best specimens of the capabilities of the soil and climate for forest growth. Numerous vineyards occupied the hill-sides, and by these we descended into the small vale of Berbet, out of which ourselves and the rivulets found their way by a narrow and precipitous ravine in limestone, about $\frac{1}{2}$ a mile in length, with a bad road, and which leads to the expanded and fertile valley of the Ghomár Szú, the head waters of the Khazír, or Bumadus. This valley is rich in vegetation and cultivation, and contains many villages. We crossed it in a diagonal direction, and in about $1\frac{1}{2}$ hour reached a village at the foot of the range of hills which

superstitious traditions concerning this khalif. Be this as it may, the I'zed, Karubén, Sheïkh Ma'zen, or exalted doctor (as the evil spirit is variously called) of the I'zedís, is a corrupted doctrine, converted by the ignorance of the people alone into whatever exists of direct worship, by the same process that in the Roman Catholic Church the doctrine of the intercession of saints becomes in the hands of the uneducated, a real saint and even picture-worship.

* Kinneir speaks of the I'zedís as tolerant in points of religion, free from narrow prejudices, and possessed of noble and generous principles. The I'zedís of Bahdínán must apparently be distinguished from the same tribe in Sinjár. The great villages of the I'zedís of Bahdínán, more especially Bah 'A'shikáh and Bah Idrí, are the best built, most flourishing and cleanest spots in Adiabene, and the inhabitants are kind and hospitable to Franks, but they detest Turks, who never fail to heap upon them all kinds of absurd reproaches. There is no doubt that the I'zedís are quite open to a better education, and even to a more humane religion.

bounds the valley to the N. Here we first observed the horns of the chamois of Kurdistán; about $2\frac{1}{2}$ feet in length, of a dark black colour, and curved inwards, with knots on the convex part.

The ascent of the hills, composed entirely of supra-cretaceous limestones, brought us into the region of the valonía oak, where the trees, however, were of spare growth. The ascent occupied $1\frac{1}{2}$ hour, when we were agreeably surprised to find the range breaking suddenly off in a steep precipice, beneath which, at a depth of 800 feet, was a narrow vale, with many villages and gardens, and over which rose a huge mass of alternating limestones and sandstones, to the height of about 2000 feet, called the Chá Zírwár. We were obliged by this character of the country to alter our course, and keep up the side of the precipice, till, passing over some broken hills clad with forests of oak, we found ourselves in the valley of Chelóki, bounded to the N. and S. by narrow ranges of limestones, with a quâquâversal dip, rising so steeply and terminating in so sharp an edge as to look almost like walls of art, an appearance common to the outer ranges of limestone hills. Immediately N. of these double ranges is the lofty and Alpine chain of Gharah or Ghararah, separated in a direct line by a valley scarcely 1 mile in width from the Jebel Haïr or Chelóki ranges, and bounded to the N. by the great valley of 'Amádiyah. This chain, composed of various limestones and sandstones, separates the tributaries of the Great Zab and the Khábúr or Zákho river from the tributaries of the Khazír, or Bumadus, and those of the Khosar, the river of Nineveh. It is prolonged to the N.W. by the Chá Spí, or Jebel Abyadh (white mountain)—Researches, p. 265—which, reaching the Tigris, is prolonged into northern Mesopotamia by the low sandstone hills which bear the old name of Jebel Gharah. To the S.E. the same chain is prolonged to the ravine of the Great Zab, and beyond that by the mountains designated as the Sar Hasan Beg, which will be afterwards described. The central chain of Gharah presents at times a common single crest, the lime rocks having a quâquâversal dip; but at times the union between the opposite beds is not perfect, and a craggy valley, of from $\frac{1}{2}$ a mile to 1 mile wide, is left between walls of rock, dipping to the E. and W.

At the easterly foot of the Túrá, or Jebel Gharah, and near the village of Zindár, are some copious springs, furnishing a tributary to the Khazír; and near this we obtained a few organic remains, illustrative of the age of the sedimentary rocks of the Túrá Gharah. Our road was carried over this chain in a tortuous manner, chiefly through wooded and picturesque glens. The height of the summit level above the sea was, by boiling-point thermometer, 2187 feet: the culminating points may be judged to rise to 4800 feet. There was still a good deal of snow on the

eastern slope, and patches on the western. We halted for the night in a vale at an elevation of 3620 feet, without habitations, but having a fine spring of water. Temp. 52·7 Fahr.; air, 78·7.

Wednesday, June 10th.—We had nothing but a gently undulating and well-wooded country from our station of last night to the valley of 'Amádiyah, the bottom of which is occupied by a deposit of supra-cretaceous sandstone and sandstone conglomerate, of little adhesion, and deeply intersected by water-courses. From the undisturbed horizontality of the beds I was inclined at first to look upon this sandstone as a local deposit, filling up this great valley, but a prolonged investigation disclosed that this formation has been tilted up by the Túrá Gharah, but not by the Túrá Matíneh of the Chaldeans, or the Chá Matíneh of the Kurds—the range of mountains which bound the vale of 'Amádiyah to the E. or N.E.

The head waters of the Gharah river, a tributary to the Great Zab, spring from a slight swelling in the soil of the valley, about 12 miles W. of 'Amádiyah; while from the opposite side of the same eminence the waters flow to the Khábúr. A river which at the place of our descent was a mere brook became, before reaching 'Amádiyah, 15 yards in width, being supplied by mountain torrents, which issue from every gap and from every snow patch in the Túrá Gharah and the Túrá Matíneh. The detail of some of these will be given in the map.

The valley of 'Amádiyah, although containing many villages, belonging partly to Kurds of the Bahdínán tribe and partly to Chaldeans, is but sparingly cultivated, being mostly occupied by forests of valonía oak, which more especially stretch along the eastern foot of the Túrá Gharah from hence to Rowándiz, a distance of 3 days' journey, and this is the great district for gathering galls and valonía; for in our travels further eastward we scarcely met with any more groves, still less with forests of oak.

We had been accompanied from Mósul by a Roman Catholic Chaldean, of the name of Dávud, a respectable gall-merchant of 'Amádiyah, who, being well acquainted both with the Kurdish and Chaldean dialects of the mountains, was engaged to act as interpreter. From this man, and from other inquiries instituted at 'Amádiyah and at Rowándiz, it appears that the perianth of the *Quercus valonía* is alone gathered for the market, but that galls are obtained both from the *Q. valonía* and from other oaks. I did not find them in the act of gathering, but the trees pointed out as furnishing galls were *Q. cerris*, *pedunculata*, and *infectoria*. The gall-apple, which is known to be the product of a species of *Cynips*, is only gathered from the stalks or stems; that on the leaves is pulverulent and useless. The zone of oak in these mountains extends from an elevation of 1500 feet to 2500 feet

above the level of the sea; above and below this the trees become mere shrubs.

The valley of 'Amádiyah, excepting the slight elevation intervening between the watershed of the Khábúr and the Gharah rivers, extends from the Tigris to the vale of Rowándiz, being, however, curved about 12 miles to the E. of 'Amádiyah, in the district of Zibeírí, and is about 5 or 6 miles in width. The town of 'Amádiyah is built upon a rock-terrace of limestone; the only one which overlies the sandstone throughout the valley. This rock lies on the eastern side of the valley, and is an offset from the Matíneh range. The extent of the terrace, which is in shape somewhat oval, is $\frac{2}{3}$ of a mile in length, and $\frac{1}{2}$ a mile in width. It is everywhere surrounded by cliffs, varying from 40 to 80 feet in altitude; consisting of compact limestone reposing upon sandstone. It took us 45 minutes to ascend from the base to the gate, the road being tortuous. There are two gates to the town, one to the N.W., the other to the E. The town stands on the eastern portion of the terrace, the remainder being occupied by graves and a square open castle, with circular towers at the angles, built by the late Beg of Rowándiz, when he sacked this place. The rock terrace is also defended at various points by guard-houses, towers, and irregularly-constructed bastions, with occasional curtains, which are not however carried round the rock. The town is all in ruins: of the houses formerly existing, only about one-third are now in repair or inhabited; and of the bázár about one-fourth is made use of, the remainder being in a state of decay. Above these perishing materials there rises a seráï, the residence of the pás'há, the lower part built of stone, the upper of mud; and near it is a beautiful model of a pillar, a detached mináret, the only one in the place, and also near the only existing mesjid. At present the chief population of 'Amádiyah are Jews, who have 70 houses here and 3 synagogues. These poor people have among themselves a tradition that their ancestors have dwelt here from a period shortly subsequent to the captivity. The Mohammedans have 60 houses, and the Chaldeans have 20 houses, of which 5 are Roman Catholic. There are also 5 houses of Armenians, who pursue their usual avocations as jewellers, armourers, &c. There was a garrison of nearly 200 irregulars, chiefly Arnaúts and Greeks of Rúmelia.

The Chaldean community of 'Amádiyah, which remains steadfast to the ancient faith, has only one priest, a most simple kind-hearted man, called Kashiyá (priest) Mandú. Besides 'Amádiyah, the duties of his post extend over the villages of Bibábi, Hamzíyah, Belaghání, Arrishk, Haradán, Meristek, Kománi, Derí, Derzín, Erdil, and Beg Kótí; a district of upwards of 40 square miles, which can be well supposed to derive little advan-

tage from a single spiritual instructor. Hence the progress of the Roman Catholic faith among the Chaldeans of Bahdínán, which has already gained over the villages around Zákhó, long since left without any teachers of the faith of their forefathers.

By the recent changes in church government effected in Mósul in June, 1840, by the envoy of the Pope, M. de Villardille, bishop of Lebanon, Már Zahar, bishop of Mósul, was made patriarch, with the title of Már Nicolaus; and to him were given Baghdád, Mósul, and Al Kósh. Már Yúsuf assumed the episcopal supremacy over the town and district of 'Amádiyah; Már Pétrós that of Jezíreh and Zákhó; Már Michael, of Se'rt; Már Básileis, of Diyár-bekr; Már Agathos, of Márdín; and Már Laurentius, of Kerkúk.

A Chaldean bishop was appointed, about seven years ago, to 'Amádiyah, by the patriarch Már Shim'ón; his name is Már Elias: but, after living at 'Amádiyah only one year, he seceded from the Chaldean, and became a convert to the Roman Catholic church. His character has, however, become suspected among the Roman Catholics, who have reduced him to the lower rank of priesthood; and he is strictly watched at Mósul, as fears are entertained of his desire to return to the Chaldean church. He would not, however, be received in the mountains, where he is equally despised for his tergiversation by the laity and the clergy, the latter of whom are the more particularly indignant from the great responsibility of the charge entrusted to him.

Although the priest of 'Amádiyah, Kashiyá Mandú, received holy orders from Ish'íyah, Chaldean bishop of Berráwí, residing at Dúrí, he and his flock pay their tithes and contributions to Már Yúsuf, Roman Catholic bishop of 'Amádiyah, now residing at Al Kósh. This is in virtue of an arrangement made by the Roman Catholic church with the 'Osmánlí government, who would be less secure of their part of the revenue if it were paid to the bishop of Berráwí, while the Roman Catholics would naturally get nothing from a church from which they have seceded. Two other districts, that of Dirákan and that of Núrwár, containing many villages of Chaldeans, are similarly circumstanced: each of the above-mentioned districts has three priests.

The only antiquities which we found at 'Amádiyah were the foundations of a temple hewn out of the solid rock on the surface of the terrace. It is 20 yards wide and 30 long, and about 8 to 10 feet deep. At the E. end is a cut in the rock for an altar, and to the S. a sepulchral cave, divided into three compartments. In the interior there are three rows of pillars, shaped like obelisks, only truncated at the summits: this has all the appearance of being an ancient Persian fire-temple, and as such was known to the inhabitants. There is also a bas-relief of a

human figure, rather larger than the natural size, cut in the face of the rock below the N.W. gate. The figure is much mutilated, but what remains of it resembles in its details the statue in the cave of Shápúr, which is generally supposed to represent the conqueror of Valerian.*

Not far from 'Amádiyah is a small Chaldean monastery, untenanted and without doors. The town itself does not appear to have been a place much frequented by pious Mohammedans, as there are only two ziyárets in the mezár or burial-ground. 'Amádiyah stands in N. lat. $36^{\circ} 47' 29''$, as derived from an observation of the moon's meridian height, and at an elevation by boiling-point thermometer of 4265 feet.

* These vestiges of a Persian temple situate in one of the most prominent positions on the rock-terrace, and belonging, as would appear from the character of the statue sculptured at the portal of the city, to the early monarchs of the Sasanian dynasty, would indicate that one of the sacred fires or pyreæ of the Magians existed at this place; and this, combined with the strong position of the fort, favours the supposition of its being the Assyrian Ecbatana of Ammianus (lib. xxiii. c. 6). Whatever may have been the original meaning of Akbatana, or Ecbatana, which, according to Major Rawlinson (Journ. of Roy. Geo. Soc., vol. x. p. 135), signifies a *treasure-city*, it is certain that that name was very generally applied: hence the great number of the Ecbatanas of antiquity. The city of this name, noticed by Plutarch in his Life of Alexander, was in Babylonia, and not in Assyria, and may be easily recognised, as the Macedonian hero went there next after the battle of Arbela. He was there particularly struck with a gulf of fire, which streamed forth continually as from an inexhaustible source. He also admired a flood of naphtha not far from the gulf. (Langhorne's Plutarch, p. 480.) This description applies solely to the Abú Jeghár, near Kerkúk, at which latter place is a castle-bearing mound of great antiquity, resembling that of Arbela, a city of the same date. It is not surprising that the Magians should have made these natural fountains of fire the object of a peculiar worship. Major Rawlinson (opus cit. p. 137) quotes the Asiat. Res. (vol. iii. p. 10) to show that so great was the veneration in which these fountains were held, that they were visited by devotees from India. But save the fires there are no remains of antiquity at the place nearer than Kerkúk, for I have carefully examined the site and circumstances connected with these natural fires. (Researches, &c., p. 242 *et seq.*) The site of the great Median Ecbatana has been satisfactorily determined by Major Rawlinson. But Stephanus Byzantinus says: "Est etiam oppidum Syriæ Ecbatana;" and we have the authority of Pliny and Hesychius that this was situate upon Mount Carmel. There was also a Persian Ecbatana: Pliny says, "Magi obtinent Passagardas castellum, in quo Cyri sepulcrum est: et horum Ecbatana oppidum." The Arsacian Ecbatana which appears to have been identical with the Ragau of the book of Tobit and the Rhages of the historians of Alexander, is represented according to Major Rawlinson by the ruins of Kal'eh Erig, near Verámín. If it can be shown, then, that there were two Median Ecbatanas, one Persian, one Syrian, one Babylonian, and one Arsacian, I can scarcely see the grounds for scepticism as to the existence of an Assyrian Ecbatana. Mr. Rich found that 'Amádiyah was still known to some by the name of Ekbadian; and although my inquiries on this subject have not yet been attended with success, Mr. Rich was far too careful a registrar of facts to have been easily misled, and too well acquainted with the Asiatic character to have founded his statement upon a leading question, such as "Do you call this place Ekbadian?" which, if the affirmative is supposed to be sought for, will always be given.

Our questions led to the following results: first, that the Kermánijí, or Kurds, know the town universally by the name of 'Amédi, or "the town of the Medes;" and that 'Amádiyah is a corruption of this name by the Arabs and Turks, not known in the mountains: they in the same way change the name of the Berráwi into Berráwiyah; that of Tóbí into Tobiyah; and so on with many other Kurdish and Chaldean tribes. Secondly, that they have a tradition that the town, notwithstanding its Median conquerors and Magian worship, was founded by the Apocryphal prophet Tobias.

The same night that we arrived at 'Amádiyah, the Chaldean mountaineers made a descent upon a Mohammedan village, peopled by the descendants of an 'Amir Sayyid, or chief descended from the Prophet, only a mile from the town; and from all the information I could collect, although most anxious to disbelieve it, only two persons out of forty escaped the general slaughter. I never could learn exactly who were the authors of this atrocious and indefensible crime, for in the interior I did not find the men even in arms, although threatened with war on every side. It is difficult, however, at a distance to form an idea of the hostility existing between the Chaldeans and Mohammedans. The Mohammedans themselves did not refrain from constantly expressing, even before us, their jealousy and abhorrence of the followers of a despised and detested religion, retaining its independence in the heart of Islamism. When a Tiyári man comes to 'Amádiyah he is subjected to every kind of indignity and insult, spurned, kicked, and spit at. His Redeemer is cursed and vilified to his face; often they are seized and made to work, and many have been put to death. Thus persecuted, it is not surprising that in time of war they retaliate upon their oppressors in a sad sanguinary spirit; their passions are too fearfully roused, and the hatred too deep and long endured, to subside in mercy and forgiveness; and ages of tyranny and intolerance have driven from their bosoms all feelings of pity towards their haughty and implacable Mohammedan enemies.

At this time Mohammed Páshá, of Mósul, was, with his detachment, encamped at a short distance from 'Amádiyah, the Kermánj chieftain of which had taken refuge in Kumrí Kal'ah in the Berráwi country. This day he came up and pitched his tents within a mile of the town; and greatly did the officers rejoice as they spoke of what they deemed certain—the immediate subjection of the Chaldean mountaineers. In the evening the rocks were lined with soldiers firing salutes, which were answered by the guns from the camp; but we went into the heart of the country, and returned from thence, while the 'Osmánlí Páshá was engaged in making overtures to the chiefs, without the least chance of success; and when we returned to Mósul, he had retired without being able to effect anything beyond the pacification of a part of his own province, by the occupation of Akra and the expulsion of the old governor of 'Amádiyah.

Aware that the roads were now occupied by armed mountaineers, who perhaps might not put much faith at such a moment in the avowed purpose of our visit, we immediately on our arrival sought out and found with difficulty a man whose poverty and rags might serve to protect him, while he ventured to the Bishop

of Berráví to announce our coming, and request a free passage. We spent two days, tormented by sand-flies, waiting for this messenger, who at length arrived the morning of the 13th, when, issuing by the eastern gate, to avoid observation, we got into the gardens and vale N. of 'Amádiyah, accompanied by our messenger and the priest Mandú, who had volunteered to go with us to the patriarch.

The pass of the Matíneh mountain is exceedingly beautiful. Near its foot a mountain-torrent (*Suláf chái*) comes tumbling over the rocks, amid precipitous cliffs variegated by a rich vegetation and long pending stalactites or a rough covering of travertino deposited by the waters; climbing and creeping plants swing in flowery festoons down the water's edge, petrified in their course, and their verdant foliage is rivalled in various tracery by the stalagmitic deposits. The torrent forms three successive falls of from 18 to 20 feet in height, alternately losing itself in caves of green foliage or re-appearing as a sheet of white foam. After about half a mile of open valley the second part of the pass is attained. It is a narrow gorge in limestone rock—the first of the redoubted *pylæ* of the Hakkári country. The mountain of Beshish is to the E., that of Sheikhtán to the W. The pass itself is called *Geli Muzúkah*. An ash-coloured snake, having bright yellow bands, waved itself occasionally up the smooth and perpendicular face of the rock; but its progress under such circumstances was very slow, and it might have been easily killed. The Asiatics generally appear to entertain a great prejudice against snakes, which they always destroy when possible, although the poor creatures are never the first aggressors, and so much to be admired for their great beauty of form and colour, and the elegance of their movements. The houses in Mósul abound with them, but, as is always the case with Nature's productions, they fulfil a beneficial purpose. Ants swarm in these mud-hovels, and these are checked in their increase by the flat-toed lizard, which itself would become numerous as a plague if it were not for the snakes, which also moderate the productive powers of the bat-tribe.

A little beyond the *Geli Muzúkah* is an isolated rock called Perí Bálgáh-sí, or the Honey-place of the Fairies, apparently inhabitants of Kurdistán. When we got to the crest of the chain we found ourselves amid patches of snow, at an elevation of 5840 feet; and below us the summer-quarters of the people of 'Amádiyah, which they had not occupied this year on account of the war. It was a delightfully cool pasture, and possessed one mud-building, the palace of the Páshá. These spots, named Yáilá by the Turks, are called by the Chaldeans Zómá, and by the Kurds, or in Kermánjí, Zozan—the present one *Zozan Nav-dashtí*.

From this point the extensive district of Berráwí extended before us; in our neighbourhood was a long valley dotted with villages of industrious Christians, while at its head was a peculiar rounded mountain, rising above the village of Dúrí, the seat of the bishop of Berráwí. Beyond were two distinct lofty and snow-clad chains of mountains—the one, Túr Devehlí, extending from N. 5 E. to N. 25 W.,—the other, Túrá Shíná, the extent of which was not well defined. To the W. the valley opened amidst mingled forests, rock and arable land, above which rose a group of rude peaks, one of which bore Kumrí Kal'ah, the present asylum of the Kurdish chief of Bahdínán; beyond which appeared a snow-clad group of mountains, the name of which I could not learn. They were the mountains at the head of the Buhtán country.

The chain of Matíneh which we were now crossing, is, it may be observed, the continuation south-eastward of the Jebel Júdí, on which local tradition places the Ark, and which divides to the N. the country of Buhtán from that of Bahdínán, and in the centre that of Hakkári from the same country, for the tribe of Berráwí belongs to the Hakkári country. The four great tribes in northern Kurdistán are Bahdínán, Buhtán, Hakkári, and Rowándiz. The Bahdínán comprehends the sub-tribes of—1. Sindí or Sindíyah (which latter syllable is generally added to all the tribes when spoken of by the Arabs); 2. Sleivání; 3. Gólí; 4. Goyí; 5. Artúshí; 6. Derrán; 7. Kaídí; 8. Sheíkh An (Yezídís); 9. Navkúr; 10. Bowát; 11. Nájukúr; 12. Kal'atí; 13. Kal'ah Deir; 14. Serújí; 15. Shirwán; 16. Baradós; 17. Gerdí; 18. Misúrí; 19. Berráwí; 20. Dóskí; 21. Kerkí; 22. Rekání; 23. Nerwí; 24. Berráwí Júr; 25. Góví; 26. Telí; 27. Zitkí; 28. Sherm; 29. Zobar. The last is the largest sub-tribe.

The Hakkári, upon whose country we are now entering, comprehend—1. The Tiyári; 2. The Tóbí; 3. Jelláwí; 4. Pimiyanskí; 5. Al Tóshí; 6. Artóshí Bástí; 7. Bází; 8. Sátí; 9. Oramári; 10. Júlámergí; 11. Jellú; 12. Dez; 13. Siliyáhí; 14. Berráwí.

The Christian villages belonging to these tribes, as far as we were able to ascertain, were as follows:—

1. *Tiyári*.—1. Ashítáh; 2. Zawitháh; 3. Miniyáni; 4. Márgí; 5. Kurkáh; 6. Lizin; 7. Jemáthá; 8. Zermí; 9. Shút; 10. Ráwálá; 11. Tel Bekín; 12. Beileithá; 13. Oriáthá; 14. Rowárrí; 15. Lagípá; 16. Mathá Kásr; 17. Bezízú; 18. Rúmthá; 19. Sádder; 20. Serspíttn; 21. Betkhi; 22. Nehr Kal'ahsí; 23. Chamání; 24. Kal'ah thání.

2. *Jellú*.—1. Alsón; 2. Jellú; 3. Zirník; 4. Marzáyá; 5. Thiláná; 6. Ummút; 7. Zír; 8. Sirpíl; 9. Bobáwá; 10. Bi-bokrá; 11. Shemsíkí; 12. Murt-oriyí.

3. *Júlámergi*.—1. Júlámerik ; 2. Kóch Hannes ; 3. Burjullah ; 4. Espín ; 5. Gavanís ; 6. Kotranís ; 7. Euranís ; 8. Syríní ; 9. Bekajik ; 10. Daizí ; 11. Shamáshá ; 12. Murdádishí ; 13. Madís ; 14. Merzín ; 15. Zerwá ; 16. Derikí ; 17. Kermí ; 18. Gesná ; 19. Kalánis ; 20. Khazákiyín ; 21. Kewulí ; 22. Meilawá ; 23. Pisá ; 24. Alónzo.

4. *Berráwi*.—1. Bebál ; 2. Ankrí ; 3. Malaktah ; 4. Bis-miyáh ; 5. Dúrí ; 6. Iyát ; 7. 'Aínah núní ; 8. Akushtá ; 9. Misakah ; 10. Robarah ; 11. Dergáli ; 12. Tashish ; 13. Básh ; 14. Hayís ; 15. Derishkí ; 16. Máyah.

5. *Tóbí*.—1. Gundukdá ; 2. Muzrá ; 3. Tomagó ; 4. Berijáï ; 5. Jissah.

6. *Báz* or *Bázi*.—1. 'Orwántiz ; 2. Shoáváh ; 3. Argúb ; 4. Kojíjah.

7. *Dez*.—1. Rabbán Dádishuh ; 2. Maddis ; 3. Chírí ; 4. Suwá ; 5. Golosel ; 6. Már Kiriyákós ; 7. Akóshí ; 8. Chalchan ; 9. Gorsí ; 10. Savams ; 11. Chemmáshá.

Besides these there are several districts containing villages comparatively insignificant, of which neither the number nor locality was noted :—

1. Waltí ; 2. Neívdi ; 3. Gesnák ; 4. Dapraphín ; 5. Búrun ; 6. Bíljání ; 7. Garwár ; 8. Albağ (between Júlámerik and the Lake of Ván) ; 9. Shemso-d-dín ; 10. Shapát ; 11. Bratsínnai ; 12. Dirakán, and 13. Nurwár in 'Amádiyah or Bahdínán.

I subjoin the following as the best estimate that I can form of the population of Hakkári, founded upon personal observation of the various sizes of the villages and of the reports as to their number. It differs very much indeed from others previously published ; but these have been founded chiefly upon Oriental exaggerations. The fallacy of Dr. Walsh's estimate of 500,000 Christians, for example, must be manifest to all who will consider the small extent of country occupied by these Christians and its limited productive capabilities :—

1. Tiyári .	24 vill.	at 20 houses each	480 houses	at 8 persons per house	3840
2. Jellú .	12	"	240	"	1920
3. Júlámergi	24	"	480	"	3840
4. Berráwi	17	"	340	"	2720
5. Tóbí .	5	"	100	"	800
6. Báz .	4	"	80	"	640
7. Déz .	11	"	220	"	1760
					15,520

To which are to be added out of Hakkári—

In Bahdínán	11 villages,	220 houses,	and population	.	.	.	1760
Town of 'Amádiyah	20 houses	.	.	.	.	.	160

1,920

And 13 districts not well known, which may be estimated at 100 houses each, or 1300 houses and a population of	.	.	.	.	.	10,400
						27,840

The Chaldeans in Persia, the Roman-Catholic Chaldeans in the same country, and the Roman-Catholic Chaldeans in Mesopotamia and Adiabene, taken together, are, on account of the greater resources of these countries, probably more than double the population of Chaldean mountaineers, or Chaldeans of Hak-kári and Bahdínán.

About an hour's descent brought us to the village of Hayís (Chaldeans), where we found the bishop of Berráwi waiting for us. This first specimen of a chief dignitary of the Chaldean church was highly favourable. I had expected a bishop with a dagger and sword—perhaps, as it was time of war, with a coat-of-mail; but instead of that, we saw an aged man, of spare habit, with much repose and dignity in his manners, and a very benevolent and intelligent aspect; his hair and beard nearly silver-white, his forehead ample and unclouded, and his countenance, from never eating meat, uncommonly clear and fair. On meeting us, he held out his hand to be kissed, and we were then intimate friends. The happy moral influence of Christianity could not be more plainly manifested than in the change of manners immediately observable in the country we had now entered into, and which presented itself with the more force from its contrast with the sullen ferocity of the Mohammedans. The kind, cordial manners of the people, and the great respect paid to their clergy, were among the first fruits of that influence which showed themselves. As we proceeded on our journey the peasantry came from villages even half a mile from the road, to kiss the Bishop's hand; and Kashiyá Mandú also came in for a share of the reverences. Little children who could not reach the hand of the Bishop were held up by their parents, and every where the same pleasing testimonies of grateful affection were exhibited.

An hour's journey brought us to a perpendicular precipice of tabular slaty limestone, about 250 feet deep, and at the bottom of which rolled the Robar Elmeï, a torrent 12 yards wide by 1 in depth, which flows to the Zab. On the opposite side of the river was a conical hill, bearing a ruined castle, formerly very extensive: I could learn nothing concerning its history. It is called Kal'ah Beïtannúrí, and is curiously connected with a tribe of Jews who reside at the foot of the hill in the village of Beïtannúrí (*House of Fire*), where they have a synagogue, and who lay claim to this place from remote antiquity.

Our road lay down the Robar Elmeï, which we crossed on a wooden bridge, passing several Chaldean villages, and then up a tributary stream to the large village of Dúrí, where the people were waiting for evening prayer; but the Bishop finding it late after performing his ablutions, renounced his intentions, and we walked from Dúrí about half a mile to a picturesque and wooded

glen, wherein were a few hamlets, one of which was the Bishop's residence, while up above, and surrounded by trees, appeared at the foot of a cliff a little whitewashed church, partly hewn out of the rock. This is Már Kiyomah, where the Bishop generally officiates.

Having taken up our quarters on the roof of a house, pleasantly overshadowed by a huge mulberry-tree, evening prayers were said ; when I first found out that a person whose clothes were all tattered and torn, whose aspect bespoke the greatest poverty, and who on the journey had always marched before the Bishop, carrying a stick with a certain degree of pomp, was no other than the Bishop's chaplain. After prayers came meals ; the Bishop and ourselves eating first, then the ragged but worthy chaplain, the priest Mandú, Dávud and other chiefs of the group ; and lastly, the servants went to work with a general scramble. At night the roof of the house presented a happy scene of patriarchal simplicity—two peasants and their wives, two cradles and their noisy tenants, two priests with daggers in their girdles, the chaplain, ourselves, muleteers, servants, &c., were all picturesquely distributed over a space of about 12 yards by 6.

Sunday, June 14th.—At divine service this morning before day-break, the sacrament was administered to all present, boys included : raisin-water supplied the place of wine. The cross on the door of the church, the cross on the altar, the Holy Scriptures, and the Bishop's hand, were alone kissed. The cross used by the Chaldeans is rather an emblem than a representation of the instrument of our redemption : its form is this . Such crosses are made in brass, or cut in stone on the churches, as doorways, and often on a large stone at the entrance of a Christian village, and it is kissed by the devout on going out or coming in : the Chaldeans generally make the sign of the cross, but Már Shim'on, when prayers were said at Júlámerik, observed no such form.

After breakfast we went to the church at Dúrí : like the rest, it presented to our examination only a rudely constructed and vaulted building of stone, into which but little light was admitted by apertures more like loop-holes than windows, perforated in the upper part of the rear gable-end. The altar was at the east end, and beyond it was a recess for the communion-table, approached by a low door : the whole apparatus of the church service consists in a copy of the Liturgy and of the New Testament, a brass cross, a bell to ring, an incense vase or chafing-dish, and a cup for the administration of the sacrament. Generally the interior of the churches are lined with printed calicoes or other ornamental cloths, often very ragged, but as it was time of war these were taken down lest they might attract

parties in search of plunder. There are no seats in the churches, and the men and women stand together ; the latter never cover their faces, nor are they in any way debarred from free communication with strangers or friends. The people were free yet respectful in their manners : their curiosity was very great, and became sometimes rather trying on the road. Of arms especially they are very fond, and could never let ours alone, although percussion guns and pistols are dangerous things to play with : there was also no keeping their hands out of our travelling-bags. The men wear their hair plaited in a single tress, which falls from the back of the head : this is surmounted by a conical cap of white felt, which makes them look uncommonly like the pictures given of the Chinese. Their best travelling-shoes are made of chamois-skin, with a strong netting of string, but those for ordinary wear are made of felt and require mending every journey ; for which purpose each man carries a large needle in his breast.

We spent the evening with the Bishop. We were in a grove of luxuriant growth and variegated foliage ; golden orioles sang from the shades, and pigeons cooed from the rocks above ; the men sat round and patted us on the back with the familiarity of old acquaintance, and the women crowded to enter into the passing conversation.

The villages of Chaldeans in Berráwí having priests, are : 1. Bebal ; 2. Ankárí ; 3. Malaktah ; 4. Ḥalwá ; 5. Bismíyah ; 6. Dúrí ; 7. Iyát ; 8. 'Aíná Núní ; 9. Derishkí ; 10. Mayah ; 11. Akushtá ; 12. Misekeh ; 13. Robárah ; 14. Dergehlí ; 15. Taskísh ; 16. Besh ; 17. Harís : of these Derishkí and Mayah alone have no churches. The Bishop of Berráwí is the only church dignitary in the mountains besides the patriarch Már Shim'ón.

Monday, June 15th.—We started early in the morning to visit the iron-mines of Berráwí, in the mountain of Dúrí. We found these mines to be worked on the surface in beds of oxide of iron, disposed parallel to the strata of a fissile yellow limestone dipping W. at an angle of 26°. These yellow limestones belong to the upper chalk formation, and the feroxides (fer limoneux of Beudant) occur in them in beds instead of nodules, as is commonly the case in this formation : these deposits have never been extensively wrought, though sufficiently for the wants of the people. The reason that the Kurdish and Chaldean mountaineers value their mines so much and are so jealous of them, is that what little produce they derive from them they convert to their own use ; which is not the case in Turkey in Asia, where the mines are either disregarded or else wrought by government, often in the vain hope of getting gold or silver from them. Hence these mountaineers think that if an intelligent nation had possession of their

mines, incalculable riches might be derived from them, which is quite a mistake : they themselves are only acquainted with five mines in all Hakkāri. I have examined three out of the five, and strongly suspect that none possess such advantages as would make it profitable to transport their ores over the mountain roads. I only wish I could have convinced the mountaineers of this, even half so firmly as I was convinced myself ; how much suspicion and ill-feeling regarding my mineralogical researches I should in that case have escaped !

We had a steep descent from the Túrá Dúrī, and reached a valley nearly filled up with snow, upon which lay a whole grove of trees that had been carried down by a land-slip. The Bishop's residence at Dúrī was at an altitude of 4917 feet; the crest of Dúrī 5792 feet ; the vale with snow 5133 feet ; from hence we ascended again over rocks of blue limestone to the crest of the Deralíní hills (alt. 5811 feet), from whence we had a prolonged descent of $1\frac{1}{2}$ hour, at a quick pace, to the village of Gun-duk, inhabited by tributary Kurds. This deep valley reaches down to the banks of the Zab ; it is bounded to the N. by the great range called Karási Tiyári, which forms the western boundary of the Tiyári district, although the outlying village of Gun-duk is tributary thereto. On the S. side of the Zab and opposite to this valley is a well-watered verdant vale, inhabited by the Chál Kurds, who hold out against the Tiyári.

During the descent of the Deralíní, Dávud fell from his mule and hurt himself, so that we were obliged to stop a short time at Gun-duk. We had scarcely left this village, and were travelling along the sides of the Karási Tiyári, when a man came running in great haste out of the woods to inquire where we were going, and who we were ; our guides having satisfied him upon these points, we were allowed to proceed. The path or mule-way, for it was never anything more, took us round the southern slope of the Karási Tiyári, where its huge shoulder presses down upon the valley of the Zab. This rapid river rolled along amid impracticable precipices, nearly 1000 feet below us. Its course could be traced for some distance, but, except two narrow and alpine vales, watered by mountain torrents, and inhabited by the Chál Kurds, there was nothing but bold masses of rock rising above one another, and increasing in height eastwards to the mountain of Tsariyá and the Túrá Shíná. The Karási Tiyári is composed of micaceous sandstones, becoming very schistose, and passing into rude mica-schists and clay-schists, with quartz rock in beds and dykes. These rocks were sometimes of a red colour, sometimes black from the presence of carbon.

As we opened upon the valley of Lizán, or of the Miyáh Izáni (river of Izáni), a scene presented itself more interesting than

anything we had yet met with in the mountains. Before us was an alpine range of limestone rocks, stretching E. N. E. and W. S. W., with lofty precipices fronting the W., and in their unsevered rectilinear prolongation appearing to form a barrier against all further progress. There was, however, one gap in this formidable rampart, through which the Zab found its way, to obtain, as it were, a little comparative repose at Lizán, where its bed is wide and less rocky. It is crossed by a bridge of ropes, which at a distance look like a single coil, and on the left bank is the Kurdish village of Jenán, while on the right is the great Chaldean village of Lizán, governed by an old gentleman who styles himself melik or king, but who is under a superior melik of Tiyári, now in the mountains. The cottages of Lizán were not all grouped together, but were scattered among groves and gardens, and being built in a Swiss style, had a most pleasing appearance. A practice also obtained here, which we afterwards found to be general among these people, of sleeping in summer not upon the roofs of the houses, but upon a frail scaffolding of four poles supporting a floor, sometimes small, sometimes large enough to contain a whole family. These bedsteads are from 10 to 20 feet in height, sometimes in the fields, even amid rice-grounds, but oftener upon the crest of little hills, or in places exposed to the wind; by this means they avoid to a certain extent the mosquitoes, which abound almost generally throughout Kurdistán.

On approaching Lizán, a person having apparently some authority came out with others to meet us. He received us at first with some distrust, but our country and pursuits being explained, we were welcomed and taken to the roof of a house overshadowed by a huge walnut tree. But we had espied, about half a mile from the village, and pleasantly situated upon the banks of the Zab, a neat whitewashed church, embosomed in a grove of mulberry and pomegranate trees. To this, accordingly, we repaired, and took up our quarters in the burial-ground, refreshed by breezes from the Zab, which rolled by us at a rate of $6\frac{1}{2}$ miles an hour.

We had not been long seated before the melik made his appearance, an old man with nothing peculiar about him; and shortly afterwards the priest of Lizán, one of the most engaging and best informed men we met with among the Chaldeans. The polished manners, the learning, and the kindly feeling of this man must have been all acquired in the mountains, for he had never been out of them, and if he had he would not have found at Mósul on one side, or at Urumiyah on the other, any examples to profit by, his manners being superior to anything I have observed among the natives at either of those places. Quiet, unassuming, yet intent in his arguments, there was nothing but his dress to distinguish him from an English country clergyman.

They treated us as usual most hospitably, but without meat, which was all the better for us at this season of the year. Here, however, we got some fish, which is abundant in the Izáni, into which river it ascends during the time of floods, and is afterwards caught by a dam put across the stream, with openings into little cells having a flooring of basket-work to let the water through. There is always a bad man in every large company, and one dissatisfied fellow this evening got up the old tale of mines and foreign conquests, but we put him down very quickly, and sent him away to enjoy the society of his own sullen self and mind of evil forebodings.

Lizán church was found, by an observation of Jupiter on the meridian, to be in N. lat. $36^{\circ} 53' 50''$. There are several roads from thence to the Hakkári country, but all of them have to compass the ascent of the great limestone range immediately E. of the valley. One of them is carried over the side of the Tsariyá Mount, E. of the Zab, but is not accessible by mules. All the rest present great difficulties. Anxious to see as much of the Tiyári country as possible, we proceeded (Tuesday, June 16) up the valley of the Izáni, with the view of visiting Ashitah, the largest of the Tiyári villages, and said to contain four churches. We were accompanied by three armed Chaldeans, sent with us by the melik of Lizán, who disappointed us in our objects without making us aware of the fact, till too late to be remedied.

At a short distance beyond Lizán we passed the village Minyáni, divided into two parts, upper and lower, about a quarter of a mile from one another; and 3 miles from the same place the village of Umrah, beyond which, 1 mile, was Zawithah. The whole valley presented beauties equalling anything in the Alpine districts of Europe. Beyond Lizán the valley begins to rise, the river flowing through a ravine below; but above this, and at the foot of the stupendous cliffs which guard the valley, is a shelving portion of declivity, which is everywhere cultivated, overgrown with trees, or studded with the pretty cottages of the mountaineers. Every available plot of ground is cultivated in terraces, rising one above the other, and the rocky interval that separates them is covered with fruit-trees or tall poplars for building. The system of irrigation practised on these terraces is very perfect; I counted twenty-five terraces sown with rice, the most common crop, all under water at the same time. In the middle of the valley the cultivation and cottages are mostly on the S. side, and above the level of the river (Izáni), but higher up they occupy both sides equally, and extend to the banks of the stream. Cultivation attains its greatest altitude at Zawithah. The village churches—edifices of simple structure, without tower or steeple, but neatly

whitewashed—are generally built on some eminence or slight elevation of ground. Umrah has two of these, both occupying picturesque situations. The little wooden platforms for night-rest are sometimes disposed, eight or ten in number, round an enclosed but uncovered space, where in summer-time the family or families meet together at sunset, and converse previous to retiring.

At Umrah we commenced the ascent of the mountain. The heat of the sun rendered the toil most severe. In one hour's time we reached the foot of the cliffs, the mules working up behind; we then turned along the face of the precipice near its foot. The road was so bad, that we had twice to load and unload the mules; at length we reached a gap in the rocks which led us to a vast growth of fennel, which announced proximity to the snow line. A number of peasants were occupied in cutting this useful plant, which constitutes the winter stock of cattle provender. When green it is chopped and put into sour milk, to which it gives a pleasant aromatic flavour. Two species of fennel abound here, and it is remarkable that they respectively favour opposite sides of the mountains. With them grow *Alchemilla alpina*, *Trifolium alpestre*, *Stachys alpina*, and a *Lobelia*. We had not yet, however, attained the beautiful Alpine vegetation which we were afterwards presented with. These heights were now arrayed in their most attractive green, and the relief to the eye was very great. The crest of the Kuríkí, the mountain we were now crossing over, leaving Ashitah to the left or W., was 7652 feet in elevation; the culminating point of Kuríkí, clad with snow, must exceed 8000 feet in height. The descent was still steeper than the ascent, and rendered difficult by the nature of the rock, a slaty argillaceous limestone, which dipped parallel with the slope of the mountain, leaving smooth surfaces to slide over, and it was impossible to say sometimes how far these slides might be carried. On the side of the hill, not far from its base, is a rude rock called Taraspino, into which a gallery is pierced for working an apparently promising vein of galena, but it is only wrought when there is a demand for bullets. The vein-stone was barytes, and I got some pretty crystalline calcareous spar; the forms, however, were not uncommon. Madreporites abounded in this limestone.

I arrived at Taraspino, a large village at the foot of the mountain, with a Greek servant, who is a good pedestrian, about an hour before any of the remainder of the party. Having saluted the peasants, and partaken of some sour milk brought by the women, I went, before a crowd could collect, to the forge, which consisted of a small single furnace without chimney, but with bellows of adequate size. The crucible would not hold above

20 lbs. avoirdupois of metal; and it is evident that it is only smelted for bullets or some other such purpose. The lead is not oxidated for silver, as there was no furnace for the purpose.

Soon after the arrival of the party the whole village, men, women and children, crowded round us. They willingly gave us specimens of ore, yet to my surprise the guides declared this a bad village, and that we must go on; I believe it was owing to our Mohammedan muleteers who had been threatened.

We accordingly started for another range, formed of quartz rock and schist, and gained the crest after little more than an hour's foot work. We then continued along the side of the hill, over several snow patches, and above the valley of the Zab. Mr. Rassám and Dávud began to give me uneasiness, as they were far in the rear and had several tumbles; Mr. Rassám was complaining of his chest, from which he afterwards suffered much, and it was growing dark. At length, just after sunset, we came to a summer pasture around a great patch of snow, called Zómá Suwarri. There were a few peasants here, and we drew up and waited for stragglers, spending a night of a most agreeable and invigorating temperature at an altitude of 7169 feet by boiling-point thermometer. The shepherds had with them some specimens of the fine mastiff of Kurdistán, which in outward appearance very much resembles the St. Bernard's breed, but is more shaggy.

There is a road carried across the mountain at a lower level than the one we were at present following, and which is only available during a short season of the year. Upon that road a monastery was built some years back for the entertainment of travellers, and a certain sum of money was given by the Chaldean church towards its erection. But a melik, by name Melik Khiyo, in whose district was this charitable institution, was found guilty of perverting the funds placed at his disposal to his own advantage, and came under the displeasure of Már Shim'ón, apparently for other evil doings, so far as to be excommunicated from the church. He is now in consequence at enmity with Már Shim'ón, and hearing that some Franks were upon the road to visit the patriarch, he concluded, as is customary in this country, that we were bearers of presents, which he resolved to appropriate to himself. The plan he adopted was to send two armed men, who met us on the road next day, and with many polite words expressed their astonishment at our having come so difficult a road, regretted our fatigue, requested that our guides should be sent back, as they would now see us safe to a place of refreshment, and thence across the mountains. These kind proposals not being accepted the argument was changed, and the conversation was more particularly directed towards the guides, who were

told it was better for them to return, as the melik was determined to fight us, and they might come off badly. They, however, remained firm to their post, and we heard no more of the matter.

The prospect from the Zómá Suwarrí was very grand, the rock scenery being bold and various. To the N., range after range of rugged mountains succeeded one another like giant walls so rapidly as to make it inconceivable how such a country can be penetrated. Five different ranges presented themselves between us and the snow-clad uplands of Júlámergí and the head-waters of the Zab. To the S. were all the long crests of rock we had toiled over, the summits of Túrá Shíná and Kuríkí rising over all ; and after all our labour the gap by which the Zab found its way into happy Lizán appeared quite close to us, but at a depth that diminished the trees and buildings into points pricked on the rock's surface.

Wednesday, June 17th.—Our road still lay along the side of the mountain, the snow was more abundant, and the slope often very steep. Those who got over first stopped to laugh at those who came behind, for the falls were even more ridiculous than dangerous. In one place the mules had to pass under a waterfall at the head of a glacier, when their burthens were well wetted—on two occasions they had to be unloaded. It was on the side of this mountain that we found waiting for us the persons before alluded to. A little below was a Zómá, sprinkled with the large bright blossoms of the crocus alpina and azalea procumbens, besides several species of squill and the clustered umbel of a spiked ornithogalum and common blue hyacinth.

We observed on the sides of this mountain a considerable change in the vegetation, indeed we found almost every range more or less characterised by the preponderance of certain forms over others, and the vast numerical increase of a few social species. Here three species of plants excluded almost all others ; they were the Astragalus tragacantha (great goat's thorn), Tragopogon orientalis (goat's beard), and Rhamnus saxatilis, the berries of which are used by the Easterns to dye leather yellow. It must not, however, be confounded with the yellow berry of commerce, which is the produce of *R. catharticus*. Goats and sheep feed upon all these plants, as did also our mules ; and flocks were numerous on these well-clad hills. ! It is remarkable of the Tragopogon orientalis that its geographical distribution is very various, and that though abounding on the plain of Adiabene, it yet does not cross the Tigris. Its white stem when first pushing out in spring is abundant in the market of Mósul, where it is brought from the plains E. of the Tigris ; and, although wild, it is incomparably the best vegetable which this country affords. The stem

makes a pleasant salad, and in the mountains is peeled and eaten raw.

On our descent dwarf-almond and Azalea procumbens became abundant. We got down to the valley of Ithá by means of a glacier or snow-patch, about a mile in length by 300 yards in width. It sloped more gently than some preceding ones; and although perforated by a mountain-torrent it bore mules and men in safety, and with our shoes off we could run or slide down, which was a great relief after the continued stepping from rock to rock. The valley of Ithá is beautifully situate, being encircled on the N. by lofty snow-clad mountains, the Tusání Túrá, the rocks of which dip N., while they present bold precipices towards the valley. There are here three villages—Ithá, Pír Beka, and Galithá. After stopping a short time at Pír Beka, where we got our favourite dish of boiled wheat in sour milk, we proceeded down the valley of the river of Ithá to the bridge which is opposite to Galithá. The torrent (for it was nothing else at this season of melting snows) was there 15 yards wide by 5 to 6 feet in depth. The bridge was ingeniously made of wicker-work.

From Galithá we commenced another ascent almost as fatiguing as that of the Kuríkí. Half way up this ascent I had the curiosity to pass with the water-course through the heart of a glacier for about 600 yards, when I reached the other side; the effects of light and shade within this icy tunnel were beautiful, and the fine expanse of marbled arch was pleasing to the eye, but it was like walking in a drizzling rain. In winter-time the inhabitants here descend the mountains on sledges of very simple construction: a single piece of wood slightly concavo-convex, or boat-shaped, has a deep notch in front, to which a cord is attached, and the navigator pulls hard in the direction opposite to that in which he is going; still he must exceed our railways in speed when launched upon an even declivity of snow with a slope of from 15° to 20°.

Having gained the crest, we had nothing to do but to descend another glacier, and it was the work of a few minutes to lose the elevation which it had taken us upwards of an hour to ascend to. We then found ourselves in an alpine valley, overgrown with fennel and a rank, marshy vegetation, at the lower part of which was the village of Malótah, where we passed the night, much against the will of our guides, as the inhabitants were Kurds. These people were in extreme poverty, living almost entirely upon wild plants. We could only get from them the stem of the fennel, gathered just as it issues from the ground near the snow-line, and stalks of rhubarb, the acidity of which, however, was very pleasant and refreshing. They had lately killed a bear at this village; the skin measured 6 feet 4 inches from the snout to

the stump of the tail, and the fur was of a dun-grey-colour, whitish beneath. We also saw here horns of the wild goat.

This valley, at an elevation of 6200 feet, was partly cultivated, partly covered with snow, and the remainder overgrown with a rank vegetation, more especially of umbelliferous plants; among which, however, were a few beautiful flowering plants, as crown imperial (*Fritillaria imperialis*), paeony, and asphodel. The waters of this little alpine valley found their way out by a narrow and deep glen in limestone, and then tumbled along to the valley of the Zab.

Thursday, June 18th.—The ascent to-day was not so steep, and in some parts we could mount our mules. The hills were also now wooded with fine oak; and gaining the next crest (Warandún), we found ourselves immediately above a summer pasture with a large patch of snow, whereon was now encamped Ismael, chief melik of Tiyári. The descent was steeper than the ascent, and extended about 800 feet. The only tent in the Zómá of Warandún was that of the melik; all the rest were huts made of branches, and there was an aspect of poverty in all things, and nothing plentiful except milk. A few cross-sticks were quickly set up and a carpet spread over them for our accommodation. It was some time before his Majesty the King of Tiyári made his appearance. He at length was seen slipping out of his tent, and encompassing our carpeted mansion. He came as if from an opposite direction, entering with an air half of pleasure, half of surprise. He had evidently been dressing, and was clad in a new cloak of scarlet cloth and wine-coloured inexpressibles. As many as the little tent would hold crowded in, and our position became extremely irksome. King, travellers, soldiers, peasants, muleteers, were all crowded or rather jammed together. It was with difficulty that space was made for a repast of rice and sour milk that had been hospitably prepared for us. The conversation turned chiefly upon mountain-politics, as the Melik's mind was evidently quite absorbed by the appearance of the Turkish troops at 'Amádíyah. He said he was also threatened on the side of Ván. But we afterwards found that he had exaggerated this. He appeared to be well affected towards Ibráhím Páshá, from whom an emissary had lately visited these mountains. He also spoke favourably of the condition of the Christians under the Russian rule. He was not a man whose countenance expressed much firmness or vigour of character. Tall and of spare habit, he appeared to have foregone the elasticity and energetic movements of the mountaineers, and in point of judgment and intelligence he was far inferior to the patriarch of the Chaldeans.

Similar customs existing among people geographically remote

from one another, independent of their importance in tracing the early distribution of nations, always excite interest, especially if connected with certain physical circumstances. A pleasing reminiscence of other alpine countries was afforded to us here by the general custom of wearing an eaglet's feather in the cap, the son of the Melik being alone distinguished by a dark green cock's feather, such as is worn in Tyrol.*

Leaving the Melik, who expressed himself disappointed by our present, although we thought we had been uncommonly generous, we descended another thousand feet through a thick forest to the valley of Kiayaú, where we pastured the horses while I examined a neighbouring lead-mine. There was, however, only a shaft of a few feet in depth, and that not being at present worked, I could not ascertain the thickness of the vein. It occurs in a slaty yellow limestone belonging to the upper chalk formation. Most of the lead here is gathered from the water-courses in small pebbles, as the tin is in some of the mines of Cornwall, only the fragments are less round.

There are two villages at Kiayaú, the upper one Mohammedan and of tributary Kurds, the lower one Chaldean and with a church.

In the parallel of Kiayaú, or rather a little below it, and at the foot of Warandún, the Zab is divided into two branches of very nearly equal size; the southerly branch comes from the country beyond Júlamerik, the northerly from Leihún and that quarter. This latter is called Berdizáwi or Little Zab. A huge mountain-mass called Meskannah extends between the two rivers.

After a short ascent over yellow and fissile limestones, we travelled along the banks of the Berdizáwi, sometimes over cliffs of conglomerate which overhang the river, and down which one of the mules had a fall, but was luckily held up by the trees and recovered without any hurt. In little more than an hour we came to a torrent which descended from a lofty and snow-clad chain to the west called Máranán.† It was 13 yards wide by 2 in depth, and crossed by a bridge of interwoven branches as usual. Near the same point was also a bridge over the Berdizáwi, and a little cultivation, but no village.

* The Melik, observing that I had been collecting plants, sent a man who brought me a gorgeous specimen of a scarlet cypripedium, which grew in shady places near the snow-line. My only botanical work (Loudon's Encyclopædia) does not mention a scarlet species of this interesting genus.

† This name is apparently the same as that of the Metropolitan, called by Major Rawlinson (*Journal of Royal Geographical Society*, vol. x. p. 103) Maranan, evidently meant for Már Hannan, the Metropolitan of Adiabene, who, at the beginning of the ninth century, withdrew a large part of Kurdistán from the ecclesiastical jurisdiction of Azerbiján, and annexed it to the bishopric of Salak, which, according to Major Rawlinson, was the name applied formerly by the Syrians to the Kurdish mountains between Media and Assyria.

Beyond Máranán river to the N. are two rocky ranges of limestone, which, with the characteristic peculiarity of that rock, tower up in lofty precipices, in this case fronting the W., while the strata dip E. The most easterly and most lofty of these ranges is called Sináber, and beyond it is the upland of Leihún. We crossed the first and lower range, when a curious arrangement of rock presented itself. The lofty precipices of limestone to the N. and S. fall away to the same point in the E. Starting towards it from nearly equal distances, the cliffs begin to lower and to recede at the same time, till they meet in a point over which the Berdizáwí throws itself with a roaring noise and a cloud of foam and spray. I regret that our road did not conduct me near enough to examine in detail or take measurements of this great waterfall. Turning to the N., the path led along the foot of the cliffs and then up rocks like steps, so that on approaching the crest of the Sináber, I found myself separated from the river by several tiers of rock-terraces, presenting so many inaccessible cliffs.

On the upland of Leihún we found the Berdizáwí divided into three branches, all which unite shortly before the gap in the rocks. The most westerly is the smallest, being only a few yards in width; the second comes from the N.W., and was 20 yards wide, and very deep, but its channel much filled with boulders; the third came from the N. 30° E., and was 22 yards wide, and from 4 to 6 feet deep. We crossed all these streams on bridges of twigs: they rolled beneath with the noise and rapidity of mountain-torrents.

This upland is inhabited by the Kurdish tribe of Leihún, under the beg of Júlamerik. Many villages, with much cultivation, are scattered around. We crossed the river, and turned rather to the S.W., to the village of the beg. A short time after our arrival, this worthy governor, a fine but ferocious-looking old man, came to us on the roof of his house, and, without allowing any interruptions, addressed us in pretty nearly the following amiable strain, omitting the salám:—"What do you do here; are you not aware that Franks are not allowed in this country? No dissimulation! I must know who you are, and what is your business. Who brought these people here?" turning round in a haughty, peremptory manner. "I," said one of the Chaldeans, laying his hand upon his breast in an undaunted manner. He turned round again, and said, more deliberately and quietly, "You are the forerunners of those who come to take this country; therefore it is best that we should take first what you have, as you will afterwards take our property;" and he turned to his followers for approbation, which was grinned forth fiercely. Taking advantage of the *hiatus*, Mr. Rassám endeavoured to put in some peaceable sentences, and ultimately got the old man into a better humour.

After a time he got up to go away; then turning towards me, who had been all the time sitting under a tree, where I had gone to take a few notes—an employment I was soon obliged to give up—he said to Mr. Rassám, “ You are social; but who is that proud brute in the corner? ” I laughed at him, and he walked pompously away. At night the mules were huddled together, and each in his own way prepared against an attempt at robbery, not so much from the old chieftain’s braggadocio as from the whisperings and signs we observed going on among his followers; but nothing came of all this noise. The Chaldeans said that if he had robbed us, the Tiyári, as we were under their protection, would have punished them for it; but I think they did not like the risk that would have attended upon the attempt; for there were five well-armed men in our party, besides five slightly armed.

Friday, June 19th.—From Leihún the direction of our travels was altered: the same previously-described remarkable peculiarity in the configuration of the country which had so much influence upon its hydrography affected also the lines of communication, and instead of travelling nearly constantly N., we now turned to the eastward, over the upland of Leihún, and low ranges of hills. The temperature was so low as to feel actually cold; and as we went eastward the river of Leihún was seen flowing through pastures, as a quiet stream, and no longer a roaring torrent. Far away to the N. was a Christian church, called Már Ghíyórghiyó Karkál, much reverenced by the Chaldeans, as the tomb of a holy person who made many converts; and at the head waters of the river was the snow-clad chain of Párá ’Ashín, which stretches in front and beneath the loftier Erdish Tágh. Passing over a range of hills, rising no great height above the upland, we descended to a cultivated vale, with houses and gardens. This place is called Eslayá. The inhabitants are Kurds, but very poor: they said they had not tasted bread for forty days. We certainly could get nothing from them, so we made a breakfast upon a salad of young vine shoots.

Near Eslayá (6258 feet in elevation) we entered upon the first granitic district we had met with in the mountains. These rocks presented the usual large and small-grained varieties of grey and pink colours. They show themselves first on the upland, at an elevation of 6000 feet, but soon rise up 1000 feet above that, in bare, rude masses; and their prolongation apparently forms the Túrá Jellú of the Chaldeans, and Járur Tágh of the Persians, the loftiest chain of Kurdistán. In the marshy spots, such as are frequent in granitic countries, there was a brilliant vegetation, more especially of primula auricula, of which the peasants made bouquets to present us with. *Caltha palustris*, *Pinguicula alpina*,

Veronica aphylla, Epilobium alpinum, and many saxifrages; euphorbiæ, carices and grasses also abounded.

Another ascent with a snow patch brought us in view of Júlamerik, bearing N. 80 E. The first appearance prepossesses the traveller much in favour of a town so beautifully situate. The castellated part consists of a massive building, the residence of the beg, to the E.; a central square court, with round towers at the angles, and a few stray houses irregularly detached, occupies to the W. the crest of a low cliff, which rises with precipitous sides from out of the collection of mud hovels, about 200 in number, that nearly encircle the castle hill, and constitute the town of Júlamerik. In other respects it is situate in a deep hollow, on the Kurdistán upland, being at an elevation of about 5400 feet, and in a ravine, by which the rivulets of the district—of which there are many—find their way into the Zab, flowing immediately below. To the E. is a bold rocky mountain, called Shembat, which is at least 3000 feet above Júlamerik; and beyond rise the still loftier summits of Jellú or Járur Tágh; the highest mountains of this part of Kurdistán, and probably only equalled by the Máranán mountains: the nearest of its summits to Júlamerik is called Galilá. To the S.W. rises a rock of limestone, about 600 feet high, bearing a ruined castle, designated Kal'ah Bawá. Around, and especially to the N. and N.W., is seen cultivation, with a few villages: we descended to one of these, called Merzín, and thence sent off a guide to announce our arrival to Már Shim'ón, and await his disposal of our persons. The patriarch was at that time acting-governor at Júlamerik, or Jemár, as it is called by the Chaldeans, the Kurd beg having gone to Básch Kala'h to meet an envoy from Háfiz Páshá. Had he been at Kóch Hannes we would have waited upon him at once; but we were too well aware of the jealous disposition of the Kurds at Júlamerik to create impediments in our own way, by doing anything that might cause either a feigned or real distrust on the part of the patriarch. Már Shim'ón sent back for answer, as might have been foreseen, that we had better not come into Júlamerik, where all our motions would be watched, and no private conversation could be indulged in; but his brother would receive us at Pagí, an Armenian village, close to the town, and where he would visit us next morning. We were accordingly soon installed in the yard of the Armenian church, from whence, as it came on to rain, we retired to the vestibule, where the people for two days had the extreme satisfaction of worrying us till we had nearly lost all patience. We were never for one moment, night or day, without a number of men around us, whose only amusement was to examine all our things, to pass jests, and fling epithets of scorn upon their visitors. I was not allowed to take any notes, being

carefully watched night and day. We did everything in our power to conciliate these rude people, by rendering them various services, but to no purpose; nevertheless I obtained a few astronomical observations at night, effecting my purpose under pretences which insured me a few minutes' privacy. By two meridian passages of Jupiter and one of the moon, Pagi church is in N. latitude $37^{\circ} 8' 53''$: its elevation is 4880 feet.

Saturday, June 20th.—Már Shim'ón came to us at five in the morning, and conversation lasted till $1\frac{1}{2}$ p.m., fasting, I suppose, to preserve clearness of understanding. The patriarch, however, told us, by way of apology, that his brother, who had been with us on the previous evening, was not at his own home, but a guest.* Már Shim'ón is in every respect a fine man, in the middle of life, tall, strong, with a capacious forehead and intelligent countenance. He was, however, evidently timid in regard to the Kurds. Our presents, consisting of modest luxuries, scarce in the mountains—such as calico, boots, olives, pipe-tops, frankincense, soap, snuff, &c.—were, to my amusement, displayed in public by Dávud, everybody offering an opinion upon the value of each item. The patriarch's good manners did not prevent his letting us know that a watch would be acceptable.

But, with these trifling exceptions, our conversation was of the most interesting kind, and the patriarch felt and expressed the greatest anxiety to enter into friendly communication with England, and to avail himself of the kind interest felt in the education and moral and religious improvement of his people by many of the inhabitants of Great Britain. At one time he retired to hold a consultation with his brother, but it was of short duration, and probably related to the feelings with which the Kurds might view such an alliance, but a moment's consideration sufficed to convince them that it was not of a nature to interfere with local political arrangements; and that, at all events, they were always in a condition to assert their own free will, and to maintain their religious and national rights. These subjects having been all discussed at length, Már Shim'ón took his departure for the castle of Jemár, his brother remaining to keep us company.

Sunday, June 21st.—It may be said that the consideration of the moral and religious condition of the Chaldeans only remotely affects the interests of geography: but as the Society has expressed itself in the Instructions as by no means insensible to the importance of this object of our research, I shall here introduce, as

* It is worthy of being recorded as an act of kindness, amid so much rudeness, that next day (Sunday) an early but simple repast was brought us; and all we could learn was that it came from a widow who had lately lost her husband. After our first interview, however, with the patriarch, plenty of provisions were regularly sent us from the castle of Jílamerik.

briefly as possible, a few remarks upon these people, in the hope of drawing attention to what I consider as the leading consideration in all attempts that may be made to ameliorate their condition. Writing to the Royal Geographical Society, I may be allowed to notice a speculation respecting the influence of physical circumstances on man. It has been advanced by the most eminent traveller of the present age, that certain climates, more especially alpine districts, where but a brief interval of sunshine alternates with storms, and where the ruggedness of nature begets sternness and moroseness in mankind, are most favourable to the propagation of a religion of asceticism and monastic seclusion. But here, in the heart of Kurdistán, where snow-clad rocks perpetually frown down upon secluded vales—where giant precipices seem almost to defy mankind to venture upon intercommunication—where waters, instead of meandering through flowery meads, pour in resistless torrents over their stony beds—where clouds, unknown at certain seasons in the plains, almost perpetually obscure the fair face of the heavens or dwell upon the mountain tops—and where the universal aspect of nature is sterile, forbidding, and austere—the benign influence of a kindly religion, and the simple forms of a primitive church, have preserved a people from self-sacrifices, unavailing to God and injurious to society. The Chaldean church neither inculcates seclusion nor celibacy among its clergy; its only purification is fasting, so strongly enjoined all Christians; and, in order that in this point their bishops—whose dignity is hereditary—may be without stain, they are not allowed to partake of flesh-meat either before or after their ordination.

But if the influences of climate and soil, combined with the peculiarities of position with regard to neighbouring races of men, on the moral and intellectual development of the Chaldeans, are modified in one direction by religion, it is much to be regretted that in another they have exercised full sway, allowing the passions too frequently to obtain the ascendant over morality and religion. The hardy mountaineer knows but a single step from the toil of travel, the hunt of the chamois, or a combat with a bear, to an expedition for plunder, or to civil war and extermination.

Thus the character of the Chaldean, besides perhaps retaining the impression of early persecutions, has undoubtedly been affected by position, by the influences of nature, and by the vicinity of warlike and predatory tribes, maintaining hostile creeds, but it is still more influenced by a very simple and easily remediable defect, namely, that with the forms and practice of worship they are not taught to understand the gospel.

In a country where none can read but the priests, it is most

essential that attention should be given to the instruction of the people in the humanizing precepts so characteristic of, and so peculiar to Christianity. It is not the fault of the laity, for they are regular attendants at church, but of the priests solely, who partly chant and partly mumble through a liturgy of great beauty and excellence, and through the ennobling lessons of the New Testament, in so unintelligible a manner, that no practical advantages can be derived from them. And it is to be remarked here that the old Chaldean in which the liturgies and Testament are written differs also much from the Chaldean dialect at present used by the mountaineers. Certain prayers are familiar to all, but they have little moral effect. Many persons piously disposed retire to a corner of the church to pray in privacy, and I have often observed that such persons adhere also to the old Oriental practice of frequent prostrations, a form not observed by the clergy: but there is no plain distinct enunciation of the precepts and practice of our Saviour or of his Apostles. There is no sermon or lecture to expound difficulties of doctrine, to awaken reflection, or to sustain faith by convincing the intellect: thus the main body of Chaldeans are only nominal Christians, and must remain so till assistance be sent to them from more favoured nations. Left to themselves and without education the people have deteriorated, and with the carelessness and ignorance of the laity have come laxity and superficiality among the clergy, an attachment to forms with a disregard to substance.

It would be a great injustice, however, to these mountaineers were I not to acknowledge that they are superior in intelligence and in moral worth to the inhabitants (Christian and Mohammedian) of the same classes in Anatolia, in Syria, and Mesopotamia. There are some forms of society and many decencies of life belonging to improved civilisation that are omitted by the mountaineers; but, leaving out exceptions, there is no doubt that they are, as a race, more quick and impressible, more open, candid, sincere and courageous than the inhabitants of the before-mentioned countries. Their bearing is erect, but without the swagger of the Turk; their eye firm, but without ferocity; their forehead ample and high, unclouded by suspicion and evil feelings.

But this slight superiority over neighbouring nations gives them no claim to be looked upon as a people enjoying all the real benefits of the church to which they belong; their general demeanour and tone, their implacability towards their enemies, and many points in the daily conduct of life, are not only not consonant with, but are severely reprobated by, the religion which they profess to follow. The origin of the demoralization and of the

religious and intellectual prostration of this remarkable people was beyond the control of man, and was primarily connected with those many revolutions with which it has pleased the Almighty to visit eastern nations ; but the present existence and continuance of this state of things is evidently to be attributed to the want of communication with other nations, and to the neglect of education among the clergy as well as the people ; and it is sincerely to be hoped that the same day that these facts shall be clearly felt and fully appreciated, will see commence the future regeneration and humanization of one of the most interesting and most remarkable, yet little known people, that are to be met with on the earth's surface.

It is an agreeable reflection that the power to rectify their error, if any such exist, lies with themselves, and that they are therefore open to the best and surest means of doing good—friendly and brotherly advice, offered by one who never (as an esteemed authority writes) considers those corruptions as heresies which do not actually tend to destroy the Christian faith. The exercise of such liberality is truly labouring not to increase the power of any particular sect, but to unite the Church throughout the world in brotherly love and sound doctrine.

The Patriarch of the East, who in the time of Assemani had twenty-five metropolitans and upwards of 200 bishops, has now only one metropolitan, Andisho Andishiyah, or Ishiyah, metropolitan of Berráwi, and four bishops, viz., Már Yumna, bishop of Gawilen, Már Yúsef, bishop of Dahara, Már Iliyás, bishop of Gúj Teppa, Már Gabriel, bishop of Ardishar,—all in Persia. The dignitaries of the Roman Catholic Chaldean church have been already enumerated ; it is remarkable that Assemani states that the Patriarch is elected by a council of metropolitans and bishops convened by the sees according to their priority, while Mr. Rassám assures me that the office is hereditary, and so far as succession in one family is concerned, this is also affirmed by Dr. Walsh. It appears that the nephew generally succeeds the uncle.

Monday, June 22nd.—This morning we left Pagí, on our road to Básch Kala'h, or the “castle at the head” waters of the Zab. We had a gentle ascent up the shoulder of Túr Burju-llah, which lasted nearly 2 hours, and then descended to the valley, or rather upland, of Kóch Hannes, a small village upon a level upland vale, advancing over the valley of the Zab, the residence of Már Shim'ón. A servant came out from the village and brought us presents of flowers and a repast. Some of the Kurds of Júlamerik were in their tents at their summer quarters in this valley, which is watered by a great number of torrents, supplied by the snows of Burju-llah.

We rode some distance along the sides of Kóch Hannes hill, having a higher range, that of 'Areb Tágh, before us. We then descended by a long and steep, though otherwise good, pathway, to a valley in which were many villages and delightful groves, with a varied and abundant vegetation. We then ascended again to a cultivated upland at the foot of 'Areb Tágh, where were the Chaldean villages of Espín and Gharánis, both having towers of defence against the predatory expeditions of the Kurds; and the latter was a good specimen of the poorer class of Chaldean villages—small, but with a bold look; poor, but religious: the inhabitants of five houses had two churches and one fort.

The prospect from Gharánis, where we spent the night at an altitude of 7009 feet, in a temperature of $40\cdot 4$, or only $8\cdot 4$ above freezing point, was very beautiful. The quantity of water poured down by the mountains around is very great: in travelling, scarcely has the din of one torrent begun to diminish when another breaks upon the ear. Cataracts in rivers or rivulets generally display some geological phenomena, such as differences in the structure of the strata, the crossing of a dyke of igneous rock, &c. Here they exhibit the effects of contrasted configuration. Three different torrents poured in lofty falls over the side of Kóch Hannes Mountain, to unite in one stream before reaching the valley of the river of Espín. The outline and forms of the mountains which constituted the lofty chain of Túrá Jellú, or Járur Tágh, were never so distinctly seen: I could take bearings to all the chief points, which, if not the highest, are by far the most steep and rugged of the Hakkári Alps. There are four or five abrupt, truncated, culminating points, between which are ridges of sharp pinnacles, rising like sky-towers, and overlooking deep and precipitous ravines filled with their vast deposit of perpetual snow, the grave of waters gone to rest. The silver crest of the lofty but less serrated peaks of Máranán also extended to the N.W., the sun's setting beams lighting up their long continuous summits like a great icy coronal set upon the sea of silent hills, which filled up the remainder of this beauteous landscape, and which we now felt loath to leave, still more so from the prospect of a burning plain before us; but we remembered that we had still to cross the same chain—still perchance to breathe freely on the summit of the peak of Rowándiz.

Tuesday, June 23rd.—There are two roads from Gharánis, one over the mountains, the other by the valley of the Zab. We took the latter, although the longer, in order to visit some sulphur-mines said to exist there, and to avoid the Artúshí or Ardúshí Kurds, who were not well spoken of.

We made two slight ascents and descents before we came to the sulphur deposit. This we first met with at the bottom of the

valley; it consisted of sulphur mixed with blue lime shales, sometimes granular, but mostly pulverulent. The second deposit was, half a mile beyond, in breccia of blue limestone, between the fragments of which was a small quantity of crystalline sulphur. Neither of these deposits were of much importance, from their extent, but geologically they resembled much what is observed in the plains of Mesopotamia. A warm spring, emitting hydrosulphurous acid, also occurred in the vicinity. We passed the Chaldean village of Kermí, and then turned off from the valley of the Zab, which was here both rocky and beautifully wooded, to the N.E., passing a valley with two more Chaldean villages.

The outline of the mountains had now become less rugged, the uplands were more lofty, and the chains more continuous. We met in our road with a well-armed caravan of mules going to Júlamerik. By the road-side grew large golden poppies; and, where marshy, *Britomus umbellatus*. In the evening we followed for some time the valley of the Zab, where it wended through a marshy upland vale; at the end of this it received a large tributary, which we crossed by a bridge: it flowed from N. 80° W. Ascending an upland a little above the Zab we reached the Chaldean village of Meïlawa. These Chaldeans are subject to Básch Kala'h, and no longer claim the distinction of belonging to a tribe.

The country towards the head waters of the Zab beyond this quite changed its characters. There were still a few mountain points, as Argí Tágh,* to the S.E., with a bold outlying rock, called the "Rock of Fire." To the N., between Básch Kala'h and Lake Ván, was the Erdish Tágh; but the outline of the chains is now tame

* This is the Múz Tágh of Colonel Monteith's map; and it appears barely to rise from 1500 to 2000 feet above the valley of the Zab, where the latter is about 6400 feet above the level of the sea; so that the mountain attains an elevation of 8400 feet. Monteith marks 9000 feet; probably from actual observation of a crest E. of that which was visible to me, and which constitutes the summit level between the head waters of the Zab and the upland of Urumiyah. Compared with the observed elevation of Sheikhiwá, I should think Colonel Monteith's observation rather in excess, and it appeared to me that none of the snowy mountains of the districts of Beráfusht, Burdasúr, and Kaniresh, which bound the upland of Urumiyah to the W., attain an elevation exceeding 9000 feet; the mean height of the crest being 8400 feet, or 4000 feet above the plain of Urumiyah. The Túrá Jellú, or Járur Tágh, towers over the range considerably, and advances beyond it to the W. But it would be requisite to extend our researches further S., along the Kandilán mountains and Sardúsht country, in order to determine the loftiest summit between the Múz Tágh and the Zagros. I think, however, that there can be no doubt that the peak of Rowándiz has no rival in the easterly chains of Kurdistán, and it is in these that it is situated. Notwithstanding the evidence of Monteith's map, it appears quite certain, from the size of the rivers flowing from this easterly chain to the lake of Urumiyah, more especially the Náz-lú, the Suhúr, and the Burránduz, that they originate in the Túrá Jellú, and flow through this chain; indeed, the transverse valleys of the two last-named rivers are quite evident from the plain, while some large tributaries probably flow from the western side of the Jellú to the Zab, in the interval between the country of the Tobi Chaldeans and the Zibári Kurds.

and rounded, the ranges being neither serrated nor boldly defined, and rising so little above the level of the upland as to have the appearance rather of hills than mountains. But the generally Alpine character of the whole country was rendered sensible by a variety of prominent features—the bleak and bare aspect of the soil—the little cultivation, and that so tardy—the reluctant vegetation of coarse grasses and sedges—the hardy and ligneous character of the perennial species of plants—and the waters flowing towards the lofty chains to the west—spoke of their altitude in language as strong as the diminished pressure of the atmosphere, whether indicated by the length of a column of mercury or by the low temperature of the boiling point of water. Meilawa, by the latter indications, was at an elevation of 6418 feet.

Wednesday, June 24th.—Our road still continued up the open valley of the Zab : $2\frac{1}{2}$ hours brought us to where two streams meet ; the one from the mountains beyond Básh Kala'h, the other from Kandá Kilissa. We soon came in view of Básh Kala'h, about 2 miles to our left. It is a large village, distributed round the base of a more conical hill than that of Júlamerik, and, like it, supporting a castle. It is said to contain 200 houses, inhabited by Kurds, Jews, and Armenians. It is governed by an officer of the Beg of Júlamerik, and is tributary to the Páshá of Ván.

At one part of the valley of the Zab some rocky ridges of yellow limestone come down close to the river's edge, which they shut up in a narrow glen. There are no less than three different castles, square courts with towers at the angles, commanding this pass. Two are in ruins, but one, Kala'h Karáni, is still in good repair. Our guides this morning had been a good deal disturbed by the appearance of six armed Kurds, who followed us for three or four hours, always keeping, however, out of shot. This was an advantageous place for an attack on our small party, for our three Chaldeans had left us at Júlamerik, and been replaced by a peaceful, talkative priest, but nothing was attempted. Keeping still up the valley of the Zab we came to an ancient Armenian monastery, well built, with sloping roof, and bell-towers, containing two bells, regularly rung at service. It is curious that the Armenians, who are dependent, should have preserved this custom, while the Chaldeans, who are independent, have no bells in their churches.

At this point the Zab is divided into two streams, one of which comes from the southern declivities of the Erdísh Tágh, in the district of Albağ ; the other from Kóniyeh, Karásún, and Kashen, where three different springs are marked in Colonel Monteith's map, evidently from actual recognition ; and the elevation given is 7500 feet—I do not know how determined, but coinciding with what might be expected from the observed elevation of the Zab

in the present upland valley, so near its sources, and where it is a mere brook, 6300 feet at Meilawa, 6800 feet at Kandá Kilissa. The sources given them by Colonel Monteith are correct, whatever may be the case with the course and tributaries of the river, as delineated in the same map. They rise between the territory of Salamast and Kotúr, in the Sar al Bágh, from the sides of which the waters flow in three opposite directions to the lake of Urumiyah to the Caspian and to the Persian Gulf.

Kandá Kilissa is, as before said, a very old Armenian monastery. It is inhabited by a bishop and priest; the former of whom, an intelligent man, assigned to it an age of 1600 years. The door-way was a handsome specimen of Saracenic architecture, though defaced by a colossal bas-relief of the Almighty, a monstrous production, resembling a great idol. Around the arch were also other figures, with large heads of hair. On the bodies of these were some antique carvings, among which were some letters resembling those which had been identified as Armenian at Al Hadhr. I may mention here, that, with the exception of the Armenian characters, the sculptured signs on the stones of Al Hadhr are correctly rectilinear, and not variously contorted as in the specimens printed by the Society. The church of Kandá is defended by a rampart and bastions, and has two outer courts with defences. On a height above is a modern castle, with a guard of about forty Kurds from Básch Kala'h: for this is the frontier of the country.

Tuesday, June 25th.—This morning we left the valley of the last tributaries to the Zab, and entered upon a hilly country, with occasional ravines in limestone. It was so cold before sunrise that we were glad to walk to keep ourselves warm. In one of these ravines was a block of limestone with a semi-cylindrical hollow, to which is attached a tradition that a prince of Salamast* was formerly converted to Christianity, and was in consequence pursued to the mountains; that he attempted to secrete himself in this hollow, but was slain there by his enemies. This locality of an antique martyrdom was treated with great respect by the Chaldeans in our company, who kissed it and then rubbed themselves in the hollow. The stone is well polished by these absurd observances.

Trachytic rocks and basalts break forth amid these limestone rocks, and constitute a group of hills,—Túrá Kháni Sar, or Akronal, which rise above a fine pasturing valley, with a lake in one part of it, and which was now occupied by an encampment of Persian Kurds. It takes its name from a ruined karavanseráï in

* This is the orthography insisted upon by Mr. Rassám. It is generally written Selmas, or Salmas. Major Rawlinson's map, I find, marks it correctly as a district, and not a town, as in all other maps.

the valley. A Kurd joined us from this encampment with his horse and gun, and behaved so outrageously to us, that had he continued till out of sight of his friends, we should certainly have given him a good beating ; but he was too wise to expose himself.

We crossed over a ridge of trachytes and descended by Kháni Berín, re-ascending amid hills of conglomerate and igneous rocks, from whence we obtained our first view of the fertile plain of Salamast bearing due magnetic E., with the lake of Urumíyah beyond. There are moments which never slip from a traveller's memory, when, after a long journey on a heated or monotonous plain, a range of mountains with their anticipations of cool waters and refreshing breezes come into sight, or when, fatigued with mountain-toil and travel, a plain, smiling with gardens and villages, and full of promises of delicious repose, presents itself to his delighted vision.

Our descent to the plain from hence occupied us, however, 3 long hours, when we reached some basaltic cliffs, which led directly to the cultivated plain. On one of them were the foundations of a castle constructed of stones of large dimensions : to the S. was also a bold rock of limestone, which protruded out of the plain, bearing the ruins of Karnawí or Marandos castle ; and before us rose a small hill, the last of the basaltic knolls, with a small Christian church. Pits were dug in the bed of a river close to us to obtain gravel, which is sifted, and then sprinkled over the land, to adapt it for growing water-melons. Two more hours amid villages and gardens brought us to the Chaldean village of Khosrowá, the place of Khosroes* (the Khusrue of Monteith's map), where we had an introduction to a relative of Már Shim'ón, and were well received and hospitably entertained.

The district of Salamast is covered with villages, as may be seen by a glance at Colonel Monteith's map, which appears, in what regards this district and that of Urumíyah, to be founded upon actual survey. These numerous villages have, as in many parts of the E., a common market, where is also the residence of the governor, and the whole is inclosed like a fort. This place is designated sometimes Salamast, sometimes Dilmán, but is generally known in ordinary parlance as Shahr, "the town," simply. It is the same with the district of Urumíyah. In all this part of Persia a bad Turkish is the language generally spoken : the better classes alone are acquainted with Persian. The Christians all look to the Russians as their protectors ; but the Persians have imbibed a notion that Mohammed 'Alí, or rather Ibráhím Páshá, is destined to be the great bulwark of Islamism, and the conqueror of the Christian foe ; and Major Rawlinson also remarks the same thing of Soldúz.

* The Khosroes, or Chosroes, of historians, is Khosraú with the Persians.

Friday, June 26th.—We rode by U'la, where the American missionaries have a school, and Túrmel, to the hills which advance in bold rocks, bearing two castles over the lake of Urumíyah, and which are designated Kárá Básh, or Black Head. But they have a culminating point westward, which had still a few patches of snow on its hoary head, and which, rising about a thousand feet above the level of the lake, is called Zendasht Tágh, or Túr Zendasht by the Chaldeans. These hills gave me much hard work, for their structure was very varied; the results, however, may be given in a few words: the fundamental rock was large-grained granular hornblende and feldspar, and the same mineral small grained passing into basalt. This rock became large-grained lamellar as in gneiss, or small-grained schistose as in certain chlorite schists. Superimposed were a breccia of limestone with fragments of hornblende rocks and limestone rocks often saccharoidal. A second series of rocks presented feldspar and black mica, large grained and lamellar, passing into black mica schists, and common mica schists much waved and contorted, and these into clay schists of various colours, red, green, and gray. Associated with these was a third series, consisting of quartz rocks, generally with a waxy lustre, and passing into jade. We crossed this range of hills and stopped in the gardens of the Chaldean village of Gawálán, to the N. of which is a larger Christian village called Jemalah by the Chaldean residents, but Jelálábád by the Persians.

Saturday, June 27th.—Our road lay along the banks of the lake, but at some distance from the water, and over a dry, gravelly, or sandy plain, covered with a species of ononis and mesembryanthemum, amid which, when the soil was slightly saline, predominated a species of salsola—when very saline, a salicornia—when scarcely at all salt, Nigella damascena, Capparis spinosa and C. ovata. Thus, at an elevation of 4300 feet, we had at once the vegetation of Mesopotamia and of Babylonia, the nigella especially reminding one of Mósul, the mesembryanthema of Hillah, but vegetation was more dense; and the perpetual artemisiæ of the lower plains were a good deal replaced by Astragalus verus and A. tragacanthoides. Amid these were numerous vagabond flowering plants, which did not, however, affect the main features of the vegetation. Springs of water were frequent at the foot of the hills, the waters being generally brackish. They must become so in passing through the lacustrine alluvium; for the formations, at least on the W. side of the lake, are not such as contain saliferous deposits. I have not seen enough yet of the lake of Urumíyah to give an opinion upon the origin of its saltiness, but it is evident that it has diminished in size and left behind a considerable lacustrine deposit characterised by its saline plants.

Major Rawlinson is inclined to take an opposite view of the subject, and to consider the lake as encroaching upon the land. This may very well be occasionally the case, as in different seasons of the year when the supplies from the rivers are greater or less, and again at certain times when whole rivers are absorbed in irrigation or are allowed free course to the lake, as is related by Major Rawlinson of the Jaghatú and the Tátáú: but these are accidental phenomena, while the great extent of lacustrine alluvium, which has evidently been deposited by the waters of the lake, leaves no doubt of the general change produced in a great period of time, notwithstanding the irregular temporary variation in the level of the waters.

The district of Urumíyah presents an extraordinary scene to a person accustomed to the treeless monotony of the plains of Mesopotamia; a more fertile district can scarcely be imagined. One vast extent of groves, orchards, vineyards, gardens, rice-grounds, and villages, sometimes with a village common. It much resembled the best part of Lombardy, between Milan and the Lago Maggiore. Five American missionaries, with their wives and families, are now stationed in the town of Urumíyah, where they pursue their benevolent work of educating the young Chaldeans, in a delightful climate abounding in all the luxuries of life. May they long enjoy them and continue their truly useful and valuable labours!

Sunday, June 28th.—Leaving Urumíyah we crossed the river of Suhúr by a bridge of five arches, and crossing a low range of hills entered upon a very fertile low rice country, which extended nearly to the banks of the lake, and to the S. gradually became a marsh, which must be unpassable at certain seasons of the year. We had some difficulty in fording the Burrandúz, also a goodly stream, beyond which we stopped for the night on the marsh near the fortified farm of U'ládi. This plain was everywhere covered with large herds of horses and cattle, and flocks of sheep and goats. There were also many villages, and every appearance of the same prosperity and fertility met with all along the E. side of the same mountains, which on the western side are, generally speaking, so sterile and unproductive.

Monday, June 29th.—Passing the villages of Thomator (christian) and that of Chár, each with its mud fort, we entered upon the hills which now separated us from the plain of Ushneï, or Shino as it is generally called. We entered by a ravine, about $1\frac{1}{2}$ mile up which we found the village of Kasinlí, the hills around rising barely 800 feet above the valley. At mid-day, having travelled 6 hours, we came to an upland of sienitic rocks, having traversed which we descended upon the

plain of Ushneï, and passing the Christian village of Chám, we rode through Ushneï without stopping, and bivouacked in a field beyond the town. The plain of Ushneï is traversed in its centre by the river Gáder, and may be estimated at 8 to 9 miles in length by 2 to 3 in width. It contains eight villages besides the residence of the governor and market-place (Ushneï), and two forts, both near the river. This differs much from the account given by Major Rawlinson, but I think the variance is owing to his having included in his estimate part of the lower valley of the Gáder, which from the direction by which he approached Ushneï may have more the appearance of constituting part of the upper plain. This plain is at an elevation, by boiling-point thermometer, of 4619 feet, which appears from the short course of the Gáder to be correct. Salamast plain, nearly on the same level as the lake, has an elevation of 4379 feet, Gawalán 4563 feet (probably 150 feet too much), Urumiyah 4518 feet, a good approximation, leaving to the lake an approximate elevation of 4300 feet. The mountains of Keli-Shín rise from 1000 to 1500 feet above the plain, or about 6000 feet above the level of the sea ; and they presented a nearly continuous extent of snow, descending 500 feet down their eastern declivities to the zone of fennel. The plain itself appears to have been once a lake, which was gradually filled up by deposits of gravel brought down by the Gáder, and which at the upper end of the plain attain a depth of upwards of 100 feet. A mud fort of no great antiquity, 2 miles S. 34 W. of Ushneï, has been raised from its previous insignificance by the learning and research of Major Rawlinson, and proved to be the village of Saragana, where the army of Narses effected its junction with the Armenian contingent. It derives, however, still more importance from its corroborating the ancient existence of a great thoroughfare across the mountains by Herí, Rowándiz and Sidek.

We suffered some inconvenience from the picturesque red-turbaned Kurds of Ushneï, who held various debates concerning the appropriation of our goods ; also from the fears of the more tranquil black-capped gentlemen, who urged us in the strongest manner possible not to venture into the mountains, nor even to sleep outside of the town. Their strong representations, backed by the many private conversations of portions of the crowd, so influenced some of our party that only four remained to breathe fresh air in the fields, the remainder betaking themselves to the town, although we had frequently had throughout our journey (and even the night before) the very same representations made to us, without any other result than leaving me and my servant to sleep alone in the mountains. Finding this want of confidence,

application for a guard was made next day to the governor of Ushneï, which led to much disappointment. Ushneï is, by meridian altitude of Saturn, in N. lat. $36^{\circ} 55' 29''$.

Wednesday, July 1st.—Waiting for the guard, we did not get off till afternoon, when, fording the Gáder, we passed by Sinkár, and then, instead of proceeding direct to the pass of Keli-Shín, we turned to the W., to the summer quarters of the Serújí Kurds, where our Zerza guards had to transfer us into the hands of the Kurd Beg. By this movement I was deprived of the pleasure of examining an inscription I was most anxious to see, and which I had first heard of from the Roman Catholic Chaldean bishop of Mósul, who is a native of Salamast. My regret has however been lessened by reading Major Rawlinson's account of the same stone and writing, which, if engraved on the compact blue slate or schist of the neighbouring mountains, as appears from that gentleman's description to be the case, must be irrecoverably illegible. It is satisfactorily determined, however, to be a cuneiform inscription. I never heard anything of a second inscription, as mentioned by Major Rawlinson. The *second range*, which overlooks Sídek, is the peak of Rowándiz; and it may have been lost by leaving the great road to ascend that mountain.

Thursday, July 2nd.—We started at an early hour for the ascent of the Keli-Shín, which was performed on foot; but we were delayed by the non-arrival of the Kurds who were to act as guards, and without whom the muleteers would not proceed; when they came up, only two were armed, and these began, in the most haughty and insolent manner, to ask for pipes, which nobody seemed inclined to give them. We then proceeded on our journey, and crossing the first range, gained a country with less snow and more wood, and with many flocks of sheep and goats feeding on the mountain sides. We soon, however, came to another range, with glaciers, the slope of which created some anxiety. We passed three of these, however, in safety; it was more fearful to look at another passing over them than to venture oneself; a single slip would infallibly have hurried a person to a vast depth.* When we gained the next crest, the peak of Rowándiz was only distant from us two more summits and crests, and was easily attainable. I had gone behind a rock to take a few bearings without attracting attention, when I heard a quarrel, and upon my return found Rassám and Dávud agitated with alarm. The Kurds had insisted on being paid according to their unlimited demands, and upon the mountain where we were. I was glad of this, as there was now an opportunity of repaying them for their previous insolence, which had indeed been intolerable all the way. They were now alone on the mountain, and the Greek and myself were infinitely better armed than they, and

our arms in better condition, so we told them to go about their business, they should not have a farthing. Mr. Rassám, however, who was for pacific measures, promised one of the guides to pay him at Rowándiz. Finding that they could get nothing from us here the two ruffians went off, which was an agreeable riddance.

We now continued our ascent of the mountain. Vast piles of snow, accumulated by the drift winds to a depth of many hundred feet, were only broken through by bold and sharp rocky pinnacles of grey and green quartz, or broke off abruptly over dark precipices of brown and blue schists, shivering away in silvery leaflets, and shaking in the breeze more like fragments of the ice-heap than of the mountain. The *Aretia alpina*, and here and there a *saxifrage*, were the only remaining specimens of vegetation; on some sheltered moist spots grew, in one mass, *Polytrichum septentrionale*. Proceeding over the first mountain, we had a descent to make through a ravine filled with snow, then another ascent steep and rocky, and another glacier, till hope deferred made the heart sick. At length we came to a precipice formed by a vast dyke of sienites, which crossed the whole crest, and constituted the summit of the peak of Rowándiz, or Sheíkhíwá, as it is called by the Kurds. We were now obliged to climb, but perseverance soon brought us to the top, from whence we enjoyed a view of almost all Northern Kurdistán, favoured as we were by an uncommonly clear and fine day; nothing but the haze produced by the intense heat of the plain prevented our seeing Mósul. Indeed it was well that before my departure I had taken several bearings from Mósul to this mountain, for since the great heats have come on it has been no longer visible. It bears from Mósul N. $81^{\circ}.5$ E.; mag. var. 8° W. Its elevation, by boiling-point ther., 10,568 feet. But, although remarkable by its position, there is no doubt that some of the summits of the Jellú mountains, which are peaks rising on a sea of peaks, or mountains superposed on a group of mountains, exceed it in elevation; as also do probably, though to a small extent, the Máranán mountains; indeed, all the loftiest Alps occur towards the heads of the tributaries of the Great Zab, adhering to the narrow line of the granitic axis; and lower towards the head waters of the Little Zab. At the same time I doubt if there are any mountains in Kurdistán which attain an elevation of 15,000 feet, as marked on Colonel Monteith's map; the highest summits of the Jellú or Járur Tágh, viewed in comparison with Sheíkhíwá, not appearing to attain a greater elevation than 12,000 or 13,000 feet.

On looking around I was particularly delighted by the number of old friends which I could distinguish; first, and most promi-

ment, were the Jellú mountains, from which I was separated by what might truly be called a tremendous country of awful chasms and steep precipices ; although, when one comes to face these difficulties, such a pigmy is man compared with surrounding nature, that they are merely steep slopes which he may tread, just as an ant finds a firm hold upon what to us appears the smooth surface of a stone. The southerly peak of Jellú evidently surpassed the peak of Rowándiz in height. Advancing from the Jellú upon the valley of the Zab, which here and there displayed itself, glittering out from the wooded vale below like a minute silver thread, was the bold but less lofty mountain of Linitka : beyond was the chain of Matíneh ; and nearer, that of Ghara Tóbí and Rash Kaím, which terminated with their rugged summits the prospect to the N.W. It is the abrupt termination of these chains, and the opening that extends between them and the Zobár country and mountains, which allows of the Sheékhíwá being seen from Mósul. To the W. was first the bold and wooded mountain of Sar-i-Burd, with the beauteous vale of Sídaká, or Sídek, at its base ; and beyond this the giant precipices of limestone which guard Rowándiz, and which open their rocky breast to allow the waters of four rivers to mingle together. To the S.W. the country was lower, yet I recognised some well-known points near Kói Sanják ; while the lofty summits of the Kandilán mountains limited the prospect to the S. To the E. was the noble expanse of lake Urumíyah, and the comparatively low country of Lahijan and Soldúz, backed by the hills of Sardúsht and Mikrí, and extending in the E. till lost in the haze of a mid-day sun. I omitted to mention, although I had previously noticed it from the Keli-Shín, that the river Gáder forms three small lakes before losing itself in the lake of Urumíyah. But, as these lakes were not noticed by Major Rawlinson, it may be inferred that they are only temporary.

It was with regret that we tore ourselves from this magnificent prospect ; added to which, the mountain itself had a charm which was deeply felt by all. It perhaps more particularly originated in the deep silence which reigned upon this lofty summit, and which appeared as if for ever unbroken on the spot which thus rose up to the region of the clouds so perfectly alone, so pure in its canopy of white, and with an atmosphere so substantially deep and blue that it seemed a cloud of itself ; and the spectator shuddered to think himself upon its bosom !

It has been truly remarked that

“ Not vainly did the early Persian make
His altar the high places and the peak
Of earth-o’ergazing mountains.”

Coleridge, if I may be allowed one more quotation from a
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remembrance of home, beautifully expresses the sentiment awakened by such situations :—

“ O dread and silent mount ! I gazed upon thee,
Till thou, still present to the bodily sense,
Didst vanish from my thought ; entranced in prayer
I worshipped the Invisible alone.”*

After half-running, half-sliding, we found ourselves in an hour comfortably seated just below the inferior limits of snow, where a fire had been kindled, and breakfast was prepared to reward us for our toil. There were also a host of Kurdish shepherds who had gathered round to wonder who were the madmen—for they were polite enough to deem us such—who had come to run, as if in derision, over their snow-clad mountains.

A large caravan passed along the road in the course of the morning, and indeed, notwithstanding the bad habits of the Kurds, this is in summer-time one of the most frequented passes in this part of the country, the same merchants having recourse in severer seasons to the road by Rowándiz to Só-új Bolák ; but in winter all roads are equally impassable. The elevation of our halting-place was 8568 feet.

On leaving this, we kept rounding the declivities of the mountain, which presented diallage rocks, talc schists, red and brown schists, and conglomerates. The first rivulet we met with came from a small lake at the south-west side of the mountain, which has apparently, but a few years ago, broken its boundaries, and scattered over the valley a vast accumulation of rocks, boulders, and pebbles. We next passed a torrent 12 feet by 2 in depth, a little further one of 11 feet by $1\frac{1}{2}$, and then another 14 feet by $1\frac{1}{2}$. All these large streams flow from only one side of the mountain, and unite in a wooded vale below, where is the village of Berkammá. We continued to descend rapidly till we reached the

* If Major Rawlinson be correct in supposing that the mountain of Asnavend, which bore one of the three original sacred fires—that of Azer-Geshesp—was at or near the famous Keli-Shín, this high and remarkable mountain was the most likely to be chosen as the site of the temple ; but it may be objected both to the Sheíkhíwí and to the Keli-Shín, that they are rendered almost inaccessible by snow and glaciers, and I am much more inclined to seek for the site of Asnavend at the peak of Atash Tágh, or fire-rock, before noticed, and which is a commanding yet accessible eminence, and better adapted to the description given in the Zend-Avesta (tom. iii. pp. 22—328), where Mount Asnavend is mentioned as between Van Khosraú, or lake of Ván, and Var Tekhesht, or lake of Urumíyah : the Atash Tágh, near Argíhi, or Arja, which was also by name and by tradition the seat of a fire-temple, and answers best to the geographical position given in Anquetil de Perron's, Zend-Avesta, being 18 hours from either lake. Major Rawlinson's argument is mainly founded upon the possible derivation of the word Asnavend from Ushmei—the O'shnöh or Ashmokh of the Syrians. The position of the mountain of Asnavend does not affect the discussion of the same traveller regarding the original seat of worship at Shíz—the Atropatenian Ecbatana—for it was after the defeat of Azdewjar (Astyages) by Kei Khosraú (Cyrus) that the fire was taken to the mount. The peak of Zendash, or lake Urumíyah, may also be noticed as a mountain remarkable in position, and to which tradition has attached a fire-temple.

region of oak, jasmine, small honeysuckle (*Lonicera alpigena*), acacia, and *Cercis siliquastrum*. Our descent, however, continued 5 hours from the halting-place, at a fair pace. When we gained the valley of Sídaká or Sídek, we rested at the village of Jeffúlí, at an altitude of only 3742 feet, so that, without crossing any intervening ranges, we had descended directly from the peak of Rowándiz to a considerably lower level than the plains of Azerbiján and the lake of Urumiyah. The change in the temperature and vegetation was, as may be imagined, very great. We were in the midst of rice and melon cultivation, and surrounded by groves of mulberry. Several little villages were scattered along the side of the river of Sídaká, or upon the declivities of the hills. The valley is, strictly speaking, a ravine at the base of the Sheékh-tawí; it and the surrounding country still remain under the government of the Beg of Rowándiz. The tribe dwelling in this vale called themselves Pír 'Astíní.

Thursday, July 2nd.—We continued our road along the valley of Sídaká, as it is called by the Kurds, and by the Persians Sídek. We passed a river from the S.E., 10 yards wide by 1 in depth, and crossed it by a bridge; immediately beyond which was a brook and ravine, and this latter isolates a bold projection of rock, which is washed on the opposite side by the river of Sídaká and the last-mentioned river united. On this projection is the fort of Sídaká, a square court with four round towers at the angles; but having also in front another curtain and gateway defended by two more towers. Before the castle is the village, which contains about 100 houses. Although the present castle is a comparatively modern building, the rock on which it stands appears to have been chiselled on its face at a very remote date, for the waters have since that period wrought changes which are easily distinguishable from what was done in ancient times to render the rock more difficult of approach. There is every reason to believe, from the peculiarities of its position as well as from its antique appearance, that it was a station or fort at the time when this was the great road from Nineveh to Ecbatana. A wooded open valley unites with the Sídek vale from the S.E., and the united waters flow into the comparatively open country between Sar Linitka and Sari-Burd. I had but a short time allowed me for the examination of this curious place, and search for inscriptions, which, as I chiefly sought them on the face of the rock, I may probably have overlooked, if they be upon a pillar, as mentioned by Major Rawlinson's informant. The soldiers came out of the castle, insisting upon an examination of our papers and baggage, as this was the Rowándiz custom-house. At last I was obliged to yield to the general desire to hasten on.

Immediately beyond Sídaká we commenced the ascent of the

Sari-Burd, a mountain of brown, blue, and green schists, and covered with oaks, including a large proportion of valonía. This country, as far as to the mountains W. of Rowándiz and to the Zobár due W., is but a continuation of the 'Amádiyah district, and, like it, is the true district of valonía and gall-nuts. We were 5 hours accomplishing nearly the semicircuit of Sari-Burd, which we had to do to gain the valley of Rowándiz, where it is washed by the river of Sídaká, which falls into the river of Rowándiz (Rúbári Rowándiz) a little below the town, and on the E. side of the limestone range, incorrectly called by Dr. Ross Beni Hindévin. In these mountains there are people of four nations and four languages, viz., Kurds, Chaldeans, Turks, and Persians. Major Rawlinson, being conversant with the Persian language and travelling only in Persian Kurdistán, has uniformly adopted Persian names, as Sídek for Sídaká, Ushneï for Shino, &c. A mountain, in Kurdish Chá, in Turkish Tágh, in Chaldean Túr, in Persian Sar, varies in its other names also, according to the language of those whom you address. I invariably adhered to the names used by the Kurd shepherds when I could obtain them; but Dr. Ross, though an observing traveller and a good Orientalist, has been evidently imposed upon by his Arab companion Sayyed Hindí, who has furnished him with Arabic names, as Beni Hindévin, Beni Karak, Beni Havírah, &c., the sons of Hindévin, &c., which have no existence in these mountains. Indeed I have found from long experience, that the best guides and attendants, when fatigued by travel, will sometimes coin a name merely to save the trouble of inquiry.

The latter part of the descent of the Sari-Burd for $2\frac{1}{2}$ miles is carried along a shelving declivity of schists, and cannot be ridden over on mules. I need not add that it is quite impracticable for artillery, and constitutes the second of the difficulties of this road, which are three in number, viz., the snows of the pass of Keli-Shín, the descent on slates at the foot of the Sari-Burd, and the vast limestone precipices W. of Rowándiz. I here became acquainted with a fact of the utmost interest to me, although my space will not allow me to enter into the details of the inquiry. All along the valley of Rowándiz and at the western foot of the Sari-Burd, tertiary brown sandstone, with ostracites and sandstone conglomerates of the same period and unaltered, underlie the schists of Sari-Burd, which exactly resemble in mineralogical characters those of the peak of Rowándiz and of the Kárasí Tiyári. I had long suspected, from a variety of circumstances, that these schists were merely altered tertiary rocks, but I was not prepared to affirm so bold a conclusion, till the evidence thus presented left no doubt in my mind, and I have brought away with me specimens illustrative of the changes by which a common coarse

brown sandstone becomes a beautiful schistose rock. We halted a short time at the Christian village of Dyana, and then rode along the plain to Rowándiz.

I was prepared to meet with much to interest me in the position of this town; but the reality exceeded my expectations. We were almost at its portals before it became visible; but it was easy to see, from the distribution of the numerous ravines, with their perpendicular walls of limestone rock, whereabouts the town would be. At length, coming over a gentle hill, we saw a mount with one of the usual square castles with round towers upon its summit; but this was not yet Rowándiz. We travelled on, and tower after tower displayed itself in succession, till, upon a naked plain of limestone, higher up, a few gardens made their appearance, and at length the town itself burst upon our view: the houses, built in rows, one above the other, and descending in successive tiers, along a tongue of limestone, which has a deep ravine to the E., and another to the N., the latter containing the river of Rowándiz. We descended into the ravine, and found a bridge thrown across the precipice where the river is only 10 yards wide and about 1 yard deep, and rolling about 20 feet below us.

The town of Rowándiz has been estimated at 2000 houses, but I could not count more than 1000. As I may, however, have left some out, let it be allowed altogether 1300; but most of them contain from two to three families, none so few as one, and many more. Indeed I never saw such a crowded population, nor so strange a scene: the roofs of the houses have no walls as in other eastern towns, and the moment the sun sets the dinner is taken, and the bed made upon the roof; for the pent-up valleys of Rowándiz and 'Amádiyah are more oppressive even than the plains of Mesopotamia. There were more than 500 persons to see us eat; and so great was the population that at night I observed there was not room enough on the roofs, and that hundreds of people, men, women, and children, lay in the streets. Many had entwined a few branches round their couches; some had erected little scaffoldings of wood and branches, on which slept the family, dogs, and fowls. The only symptom of modesty exhibited was a great outcry amongst the fair sex that Mr. Rassám wore spectacles to gratify an improper curiosity, and he was obliged to take them off. Altogether there was less refinement here than I have yet witnessed in the East. The town is defended on the land side by a wall with round towers; and the Beg has several guns. There were also several round towers outside the town: on the opposite side of the E. ravine there are two; between the castle, to the N., and the ravine of the river, there are two more, and two in advance of the walls on the land side.

There is also a larger tower in the town on the higher part of the rock. The Beg has as usual the best house, and a very pleasant summer-house, covered with branches of trees, where he spent the day while we were there. The present Beg is brother to the late chieftain, celebrated for his extreme ambition, and whose fate is somewhat involved in oriental mystery. It is well known that he was allured and not beaten from his fastness; for 'Alí Páshá only brought his guns to the hills of Herír, which, as far as regards the difficulties of the country, was no nearer than Baghhdád. The Beg went to Constantinople to plead his cause, and certain of the foreign embassies interested themselves in his fate, although he appears to have been a sad lawless mountain-bandit. However he was re-appointed, with the title of Mohammed Páshá, after swearing allegiance to the Porte, and was shipped off to Samsún, but disappeared at Amasiyeh, owing to illness, it was studiously reported; but from inquiries we made at Amasiyeh itself, a few years back, we learned that he was there overtaken by a messenger from Constantinople with the bow-string. The people still asked us about their old chief, whom they looked upon as a sort of Tamerlane.

Dr. Ross, and, on his authority, Major Rawlinson, have written of the river of Rowándiz as if it were identical with the Great Zab, which is not the case, as the river of Rowándiz comes from the W. slope of the Kandilán mountains; and up its fine and open valley is the road to Só-új Bolák: near Rowándiz it enters into a ravine of limestone, and receives at the town a stream from the S. The beds of limestone dip at an angle of 10° to the E., or towards the waters; and thus the ravine keeps increasing in height to the W. Not far below the Rowándiz is a gap in these cliffs to the S., through which flow the winter-torrents from a high mountain, towering over these ravines, and called Sar Haşan Beg. Further on, and about 1 mile below Rowándiz, the river of that town is joined by a much larger stream, formed by the union of the three great streams described above, with many minor ones, which flow from the Sheïkhíwá and the river of Sídaká. The united streams then flow onwards, till about $1\frac{1}{2}$ mile further they receive another river from the S.W.—a river which presents the very great peculiarity of having its origin outside of or to the W. of the limestone chain of Sar Haşan Beg, which it enters from the W., passing through deep ravines and secluded dells till it falls into the river of Rowándiz, to flow out of the same mountains back again to the W.; and very little beyond this junction, the united streams of Sídaká, Rowándiz, and the last-mentioned stream, flow into the Great Zab. The union occurs amid stupendous precipices of limestone, which rise per-

pendicularly upwards of 1000 feet above the pigmy torrents, though these must have been the main instruments of this singular configuration and distribution of rock and water.

Friday, July 3rd.—We did not leave Rowándiz till mid-day. There was much commercial activity in the khán. They were loading two caravans at the moment with madder-root, tobacco, and buffalo-skins. The merchants of Mósul bring there English and French goods to exchange for galls. I saw the skins of two Kurd foxes, evidently a peculiar species (*canis alopec?*), very small, with no brush to the tail; the fur fine and short, of an ash-grey colour, except the mesial line of the back, which was brown; the ears were short. Passing the gardens of the town, we made a descent into a deep valley with a gap through the lime-ridge into the bed of the Rowándiz River; we then ascended $1\frac{1}{2}$ hour to the crest of the shoulder of Sar Haṣán Beg, from whence the Great Zab bore N. 48 W., and Sheikhwá N. 78 E. The rocks of the Great Zab had become nearly horizontal, but soon afterwards were waved and contorted. It took us exactly $1\frac{1}{2}$ hour to descend the precipice which now separated us from the river. The road winds down the perpendicular face of the rock so gradually that it may be ridden on most of its length. We went fast, for we were thirsty, and the windings must have been 6 or 7 miles in length.

Having gained the bottom, the road does not follow the valley or ravine of the Zab, but of the river of Pír Haṣan, which flows into it. The elevation of the cliff measured trigonometrically was 1100 feet, or 1125 feet to a jutting crag. I had been informed by Dr. Ross of a castle in this pass, called Rúm Kal'ah, but I saw nothing but curiously-shaped rocks, which might easily obtain that name; there were also many spacious caves in these cliffs. The rivers abounded in fish; and our road up the glen of the Pír Haṣan river had many charms. In the first place the steep precipices shaded us from the hot beams of the sun; there was plenty of water, and the wooded cliffs presented great variety of scene: in some parts vast slips had taken place, and huge masses of rock for a time hid the river from sight; then we came upon a little open space with a base of sand or gravel, while at other times the road was carried with difficulty under overhanging cliffs. At length we came to the open plain, where the limestone rocks at the outskirts of the range were nearly vertical, while within they became almost immediately horizontal, an arrangement not so readily accounted for by the hypothesis of upheaving forces, as by that of subsidence. We bivouacked on the banks of the river, and near the village of Pír Haṣan.

Saturday, July 4th.—We had now entered upon an uninteresting country—the sun-burnt plains and undulating district which

extends between the outlying low ranges of hills of the Kurdistán mountains. First on our road were the hills of Koniatman, clad with oaks, among which appeared a modern square castle called Kala'h Kín by my informants, and Kala'h Júlamerik by the muleteers, who were from Rowándiz. These hills led us to the plain of Herír, beyond which is the rocky range of limestone called Gharah Surgh. Passing by Anomá, a large village, we came to the banks of the Zab, where is a ferry and two villages, the one on the left bank being called Kasroki, that on the right Kendil. The ferry, however, had been removed lower down, and when we reached it, as there was only a very small raft supported by eight skins, it took us three journeys of 1 hour each to carry over everything : there was no tree nigh to shelter us from the sun.

Much allusion has been made to the comparative size of the Great Zab and of the Tigris at Mósul,—and this is not surprising, since they are so nearly equal in magnitude that sometimes the one has the superiority, sometimes the other. I have collected a variety of data upon the subject, and the result is that at Nimrúd, at the ferry to Arbil, and at Herír, the Zab varies from 150 to 200 yards in width, while the Tigris, seldom less than 200 yards, expands occasionally to 300 and even 400 yards, as at Yarumjah. In fact the Tigris varies very much, so that at the time of flood it presents the appearance given to it in Col. Monteith's map, which represents it as formed at Mósul of many branches. At these seasons it attains in some places a width of from 800 to 1000 yards, and is a truly splendid sheet of water. But the Zab is always much deeper; and it is probably on this account that it is so celebrated for the quantity and size of its fish. It contained when we saw it a larger body of water than the Tigris, whose tributaries are not supplied by so many snow-mountains as those of the Zab. Indeed the main branch, or that of Arghana M'aden, comes from mountains (Azarah) where there is no snow at this season of the year. The temperature of the waters of the Zab is also several degrees lower than that of the waters of the Tigris throughout summer, and they are consequently delicious to drink.*

A little beyond the ferry we entered upon a country of sands and sandstone, with the usual rivulets clad with gaudy oleanders. There are many villages on the banks of the Zab, which is driven by the Gharah Surgh further N. than is marked on the maps. We stopped at one of these villages, called Isá, by the side of a clear

* I have since learned that the Great Zab is considered as uncommonly high this season, and has thus interfered with the caravans of camels, which can generally ford it by the end of July. Still as the seasons of the floods of the Tigris are in April and May, and those of the Zab in June and early in July, the superiority passes in succession from the one to the other. When at their lowest, probably, the Tigris has a slight pre-eminence.

spring, having a temperature of 69° Fahr.; the air being 110° Fahr. after sunset. We suffered much this night from hot blasts, which came from the plains of Mesopotamia, and kept the thermometer at 110° during the night. It was impossible to sleep under such circumstances; but the result was beneficial, and next day the atmosphere was generally cooled and more agreeable.

Sunday, July 5th.—The main part of the morning's journey was directed up the valley of the Akra' River, which is a tributary to the Zab, and not to the Khazír, as marked in Dr. Ross's map. About 8 miles from the Zab there are two streams; one from N. 50 W., finds its way by a ravine through the limestone range that flanks the low country, and is here called Sir-i-Sadah; the other from Akra'. This valley and the plain of Nav-Kúr (the Plain of Mud) produce the greater part of the rice consumed at Mósul, as well as many common and water melons.* We left the valley by a hill called Sar Deriyeh, of no great height, but commanding a most extensive prospect, and from whence I got bearings of all the various outlets of waters from the mountains, with also the inlet of Pír Haşán, the only case of the kind that I know in the Kurdistán hills.

Below this hill we entered upon the extensive plain of Nav-Kúr, studded with villages, but only very partially cultivated; yet more so than in its northern portion, where we had crossed it on our departure. The river Khazír flows through its centre, but afterwards approaches closely to the foot of Jebel Makläub, which it washes at its south-eastern base. We travelled on till dark, and then took up our quarters in the village of Chorek.

Monday, July 6th.—The Jebel Makläub is prolonged to the S.E. by low hills of sandstone, on the side of which is the large village of Zenganah. The Khazír forces its way through these hills at the foot of Makläub, but is again turned off by the hill indifferently named 'Aïn al Safrá, the yellow spring, or 'Aïn al Beïdhá, the white spring—from two springs on it so called which irrigate the lands of the village of Bertulli and others. The 'Aïn al Safrá and Makläub appear from Mósul as two distinct hills, but they are united by a low range of sandstone and limestone, amid which is the village and khán of Düberdah. We took breakfast at this place, and trotted from thence to Mósul in four hours, the distance being about 18 British miles.

It now only remains for me to conclude with those remarks which, as results of observations made throughout the journey and not of any single observation, could not well find a place in the narrative.

* The best and largest water-melons are produced by the Khozar.

1st. I have omitted the detail of the geological structure of the mountains, as occupying too much space, but I have endeavoured to express in a brief manner all the leading facts of that structure in the sections which I have drawn up for the Society, and which will be also an answer to the instructions regarding the search for coal, which search proved in every respect unsatisfactory; while my journey to Ur (Kal'ah Sherkát) will inform the Society of the extensive forests occurring on the banks of the Tigris N. of that remarkable site.

2ndly. It is well known that the determination of the line of perpetual congelation is attended with many difficulties. This limit is much affected by the continuity of mountain-chains, and thus we have reason to expect that it will be lower in Kurdistán even in more southerly parallels than in Mount Ararat, a comparatively isolated mountain, and where it is placed by Parrot at upwards of 13,000 feet. This is confirmed by the observation on Sheïkhíwá, the summit of which is covered by a dome of more or less perpetual snow at little more than 10,000 feet. The Máranán hills present also at a similar height domes of perpetual snow, of which parts always remain, while the craggy summits of the Jellú mountains, which rise above the same line, are so steep as to present only bare and naked rocks.

The aspect of the mountain does not affect in Kurdistán the distribution of snow so much as local configuration, and hence it is of the highest importance to distinguish snow-drifts on hill sides, and accumulations in ravines and sheltered glens, from the other indications; on a general observation, the snow lasts longer and descends lower on the eastern side of Kurdistán than on the W. This is more particularly seen on the Burdasúr mountains W. of Urumíyah, and in the Keli-Shín W. of Ushneï. There can be no doubt of this fact, which is perhaps to be attributed to the higher temperature of the winds blowing from the valley of the Tigris and the plains of Mesopotamia than that of the wind from the uplands of Persia. All patches of snow not continuous are formed by drifts, which last a long time, in consequence of the quantity of snow accumulated in them. These snow-patches extended in July as low as 6000 feet; but when protected by ravines, and in continuous mountain districts, to 5500 or even 5000 feet. When these snow-patches occur in Alpine ravines at great heights, and remain there all the year round, they still do not indicate the line of perpetual snow; such are met with in Kurdistán at an elevation of 9000 feet. As a general result it may be said that there is no chain of mountains in the Hakkári country which can be said to attain the line of perpetual congelation, although the summits of Túrá Jellú, of Sheïkhíwá, and of Máranán, approach very closely to it.

3rdly. During the present journey great care was taken to obtain the temperature of springs at different elevations, and more particularly of those which might be supposed to come as nearly as possible from the line of constant temperature or isothermal line, which Kupffer (Poggendorf's Annalen, 1829) has placed in those parallels at a depth of 25 metres, and which in the cellars of the observatory at Paris, are known to be at a depth of from 60 to 70 or 80 feet. The complete discussion of the observations collected on the present occasion would carry me far beyond the limits suitable to a memoir. Suffice it to say that the diminution of temperature observed at various elevations did not exceed 1° of the centigrade thermometer (which I always used) for 600 feet (1° Fahr. for 333 feet), whereas De Saussure gives for the Alps in summer 1° for 528 feet; Ramond, for the Pyrenees, 1° for 538 feet; Humboldt, for the Andes, in equin. zone, 1° for 187 metres (which is what Gay Lussac obtained in his aeronautical journey); and in temp. zone, 1° for 174 metres. Kupffer, on Al Búrúz (Caucasus) found a diminution of 1° of Reaumur for every 740 feet, which comes nearest to what is experienced in Kurdistán. At an elevation exceeding 5000 feet the diminution of constant temperature, as indicated by springs, grew more rapid, amounting to 1° for every 550 feet. The thermometer in the atmosphere gave nearly a similar result, but with currents of air from glaciers this could not be depended upon.

4thly and lastly! With respect to zones of vegetation, too interesting a subject to be neglected in twice crossing so remarkable a range of mountains, we observed one great peculiarity, which is the absence of the coniferæ—indeed I did not meet with a single fir, pine, or laurel in the whole range of our travels: myrtle is also wanting. The zones of vegetation were as follows:—

1. From the plains of Mesopotamia to the height of 1000 feet is the zone of *Glycyrrhiza*, *Robinia*, *Nigella damascena*, wild vine, pistachio, oleander, roses, plane tree, *Syringa argentea*. Country of rice, grapes, melons, maize, &c.

2. From 1000 to 4000 feet—zone of oaks, *Quercus valonía*, *Q. infectoria*, &c. This is the country of pears, apples, plums, &c.

3. From 4000 to 5000 feet—zone of *Lonicera alpigena*, jas- mine, *Amygdalus nana*, *Astragalus verus*.

4. From 5000 to 7000 feet—zone of *Astragalus tragacanthus*, *Rhamnus saxatilis*, pæony, fennel, *Primula auricula*, *Helleborus hyemalis*, *Crocus alpestris*.

5. From 7000 to 9000 feet—zone of saxifrages, *Alchemilla alpina*, *Gentiana asclepiades*, *Veronica aphylla*, and *saxatilis*, *Polytrichum septentrionale*.

In conclusion I may observe, that however gratifying it may be

to my feelings as well as to those of my fellow-traveller Mr. Rassám, to have assisted in restoring a Christian nation to the notice of the civilised world, I am yet fully aware of the imperfection of our labours. Much remains to be done before the curiosity at present awakened respecting the geography, natural history, and antiquities of Kurdistán can be thoroughly satisfied. Some time must elapse and many efforts must be made before all the recesses of those wild mountains can be fully explored : but that they are accessible to an inquirer using proper caution has been proved by this journey, which it is hoped may thereby give a fresh impulse to discovery.

III.—*Sketch of the Eastern Coast of Central America, compiled from Notes of Captain RICHARD OWEN and the Officers of Her Majesty's Ship Thunder, and Schooner Lark.* By Captain BIRD ALLEN, R.N.

THE best existing charts of the coasts of Honduras and Yucatán being extremely defective and quite inadequate to the growing commercial intercourse between England and the independent States of Central America, the British Government directed a minute examination to be made of the whole of this eastern coast and the adjacent islands and banks, a brief account of which is contained in the following pages.

From Cape Catoche, the north-eastern point of Yucatán, the survey was prosecuted in a southerly direction for 370 miles along the eastern shore of this peninsula, including the shores of Spanish Yucatán and the British settlement of Honduras ; then in an easterly direction 350 miles to Cape Gracias á Dios, comprising part of the coasts of Guatemala and Mosquitía ; and lastly, again to the S. for 250 miles to the river Colorado, in lat. $10^{\circ} 47' N.$, long. $83^{\circ} 35' W.$, being the remainder of the coast of Mosquitía, and 45 miles of the coast of Central America.

The latitudes and longitudes were, when practicable, observed on shore, the former generally by meridian altitudes of stars N. and S. of the zenith, and the latter by chronometric observations. The chain of connexion between the West Indies and England is subjoined from Captain Owen's nautical memoir descriptive of the survey.

"We were furnished with eight excellent chronometers, the Standard (No. 114, by Dent) being the watch that gained the first prize in 1829 at the Royal Observatory, Greenwich, and was the best watch that at that time had been placed there for trial.